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APRIL 1956 75¢

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LOCATION ANALYSIS

PLUS OTHER ARTICLES AND DEPARTMENTS
COVER: PAGE 30



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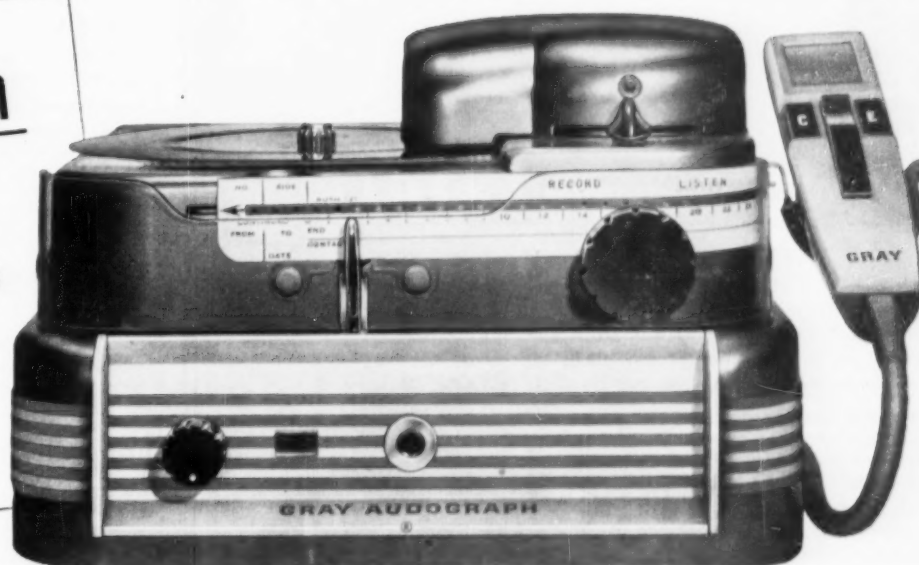
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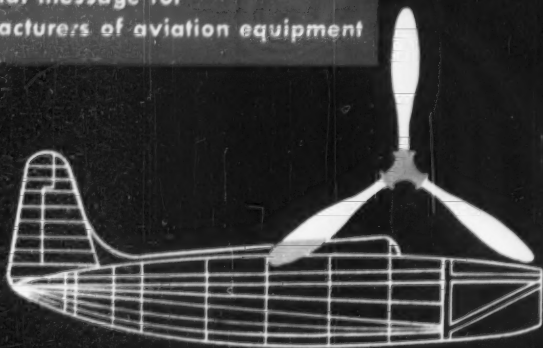
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READING
AND
ROUTING
MEMORANDA

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PHILIP B. NILES
Vice-President, Yale & Towne Manufacturing Co.

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ALFRED G. LARKE
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Director of Economics, Dun & Bradstreet Inc.

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JAMES K. BLAKE
Marketing Editor

ALFRED G. LARKE
Employer Relations Editor

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A story of machine tools, and of the automatic controls being developed to help them turn out better parts faster and at a lower cost. But it is a story that extends far beyond the machine tool industry. The article will tell, in text and pictures, what types of control units are being developed, where they are used, how they compare with such established operating units as cams and tracers.

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EXTRUSIONS





BUSINESS executives are cautioned that the situation in the Middle East is critical. Developments which well could have a decided bearing on the American economy are within the range of possibility. Buying prompted by the fear of war already is in evidence. The Soviet Union is in desperate need of oil. Its encroachment on the area may be cloaked but conditions favor such a maneuver.

Nothing would advance communism more than a severe depression in the United States. Recognizing this, those charged with the conduct of the nation's affairs look with apprehension on speculative excesses which could upset the stability that has been maintained for several years. Economic strength has done as much as military strength in preventing the outbreak of war.



At a time when the important indices, other than those associated with automobiles, are rising, some officials are losing no opportunity to call attention to the need for all business men to consider the steps they would take if something happened to reverse the trend. To have a definite plan for such a contingency could prevent a natural adjustment from snowballing into a decided recession. The feeling is that such action is particularly necessary at present when it is possible that more than the automobile industry may have borrowed in 1955 a portion of the 1956 market. There have been additions to the number who believe the level attained by business in 1955 is not sustainable. Moreover, they think it would be risky for the Government to take steps to maintain that pace. It is recognized, however, that in an election year the temptation to stimulate the economy, should it show signs of lagging, would be great.

If Congress puts restrictions on automobile manufacturers the beneficiaries can look forward to controls which they will not like. The marketing of automobiles does not strike some members of Congress as being a depressed industry.

The dark cloud of national debt that hangs over the country has a silver lining. While the debt is a great burden, it also has been described as a bonanza in that it provides a haven for trust funds and makes possible the personal satisfaction that comes to the 50 million Americans who hold Government securities.



Enough basic data are now available to convince most officials that business as a whole will continue at a high level during 1956. Investment in plant and equipment, as revealed in the recent joint survey of the Department of Commerce and the Securities and Exchange Commission, greatly exceeded estimates. A significant feature of the survey is that small business is increasing capital expenditures as well as are the larger units.

Apparently the activities that are expanding will more than offset those that are declining. The coveted goal of \$400 billion in the out-



When Paul Wooton first chronicled the Washington scene, President Wilson had been in office little more than a year. As a veteran newspaperman and confidant of those in high office, Paul Wooton has been able to ferret out the news behind the news for business men.

put of goods and services will be reached before the end of the second quarter, it is anticipated by the specialists who handle those figures.



Commerce Department inquiry reveals no disposition to accumulate inventory unduly, either voluntarily or involuntarily. The rate of increase has not varied greatly in the last five months.

Balancing the budget under conditions that have existed during the current fiscal year is widely regarded as a heroic accomplishment. Since January 21, 1953, it has been the major objective of Treasury Secretary George M. Humphrey. He is actuated by the belief that it is not fair to burden the oncoming generation with debts that should be paid now.

As the end of the fiscal year approaches it is becoming more certain that there will be a surplus of receipts over disbursements in national finances. In the matter of using the overplus to retire debt or to reduce taxes a sharp political division exists. It does not follow party lines entirely. Leading proponents of debt reduction are found in each party. Sampling indicates that a majority of the people of the country, regardless of section, favor debt reduction in a period of prosperity.

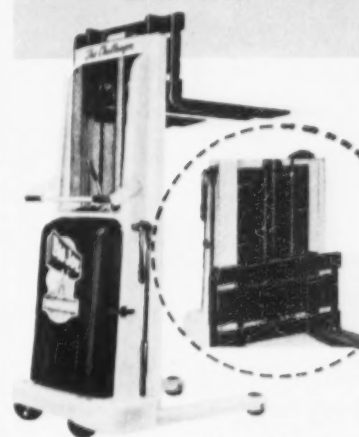
With an increase in the last 50 years of 297 per cent in the number of persons of 65 years and over and an increase of 200 per cent in those of 45 years and over, the problem of employing older workers is being studied more intensively. The Council of State Governments recently issued a report on the subject. The Labor and Health, Education and Welfare departments are joining with the council in a supplemental series of studies. There

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are regional differences in the problems which are being studied. Employers are being interviewed to catalog existing policies that affect older workers. Objections raised to employing men over 45 and women over 30 are being listed. It is suggested that industries should study how they can use older workers to advantage since it is believed that a larger proportion of the work force in the future will have to be drawn from older people.



The Administration was quick to offer crop surpluses to countries ravaged by an unusually cold Winter. Principal need for these relief supplies will come next Winter because of reduced crop potential, but shipments already are moving, making a contribution to the reduction of the excess on hand.

With personal income well above the \$300 billion mark efforts are being made to keep the figures simple to the man in the street. Few persons have an accurate grasp of what "a billion dollars" signifies. Some help is afforded by keeping income and gross national product figures on an annual rate basis, but they become more understandable when they are reduced to a per capita basis. Figures showing that per capita income has tripled in the last twenty-five years are more impressive than the annual rate. In some States per capita income has increased four or five times in that period.

Concern over the volume of consumer credit is diminishing. It was recognized that the total was not out of line with the increased volume of business, but there was fear that the quality of credit was below average. Confidential returns to the Commerce Department indicate relatively few delinquent accounts and very few repossessions.

Some observers feel that consumer credit expansion will slow down enough this year which, along with

smaller mortgage requirements, will make lower interest rates possible. Before the year is over, it will be possible to estimate the quality of outstanding credit more closely.

Consumer intentions as reported to the Federal Reserve are doing nothing toward dampening optimism. The Government hopes consumers will apply common sense to their policies just as business men are being asked to do. Even the most politically-minded do not want the economy pumped up too much for fear the bubble may burst before November 6.



With a greatly increased number of persons in the \$5,000 income bracket a tendency is noticed on the part of manufacturers to give chief attention to articles in the de luxe class. More consideration should be given, it is suggested, to items that persons with a \$2,500 income can afford. As a result of wage increases there now are many more incomes in the \$2,500 bracket than formerly.

The new Director of the Budget, Percival F. Brundage, estimates that Federal receipts in fiscal 1957 (which runs from July 1, 1956 through June 30, 1957) will be almost \$2 billion larger than in fiscal 1956. Almost all of the rise is expected to come from increased individual income taxes as a result of expanding personal incomes. The receipts from corporation income taxes are expected to hold even at \$20.3 billion in both years, although corporate profits during the first quarter of 1956 are already pushing ahead into new high ground. Had the corporate tax rate been reduced this month as had been scheduled, there would have been an annual loss in revenue of \$2 billion, wiping out the small surplus which is expected. Strong pressure seems to be growing for a reduction in the tax rate for small corporations, those with incomes below \$25,000.

Paul Weston

WASHINGTON, D. C.

Nickel Progress Report



A crack at the earth's surface shows bulk mining is proceeding far underground.



Panel caving is one of two bulk mining methods which account for 70 per cent of the company's total nickel output.

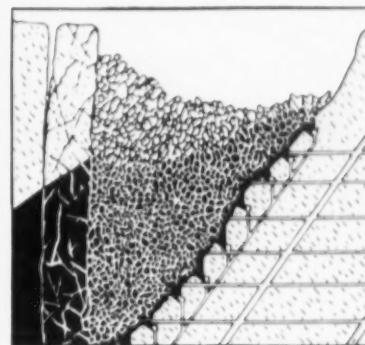


Diagram of panel caving in Creighton mine. The heavy panel of ore and rock sinks, breaking up as it moves down.

Once only "waste rock"... now a new source of Nickel

How Inco's mine engineers utilize a panel-caving method in order to recover nickel from huge ore deposits that formerly were not practicable to mine

Panel caving is one of the newest mining methods put into use by The International Nickel Company.

The tonnage of ore handled by this method is immense. Sometimes a single block measures 200 by 800 feet. It may weigh as much as 1½ million tons.

As these heavy masses move downward they break into pieces small enough to drop through chutes and into machine crushers deep inside

the mine. From crushers the ore goes a quarter mile by conveyor to hoists that lift it to the mine head.

From there, the ore is milled as fine as sand. The concentrate is then pumped to the Inco reduction plant 7½ miles away.

Panel mining; new concentrating machinery; new, continuously improved operating practices; pipeline transport. Add them together and you can see how they make possible

production of nickel from ore deposits once only "waste rock."

Inco has prepared a full-color sound film—Mining for Nickel—that shows the operations of modern nickel mines. 16mm prints are loaned for showings before technical societies, engineering classes of universities and industrial organizations. For details, write The International Nickel Company, Inc., Dept. 47e, New York 5, N. Y. ©1956, I. N. Co.

Which Mining Method is BEST?

There is no one best method of getting ore out of the ground. Type of ore; type of rock; even the location of the mine must be weighed. Inco uses five underground mining methods at Sudbury:

*Square Set Cut and Fill
Shrinkage Blasthole
Panel Caving*



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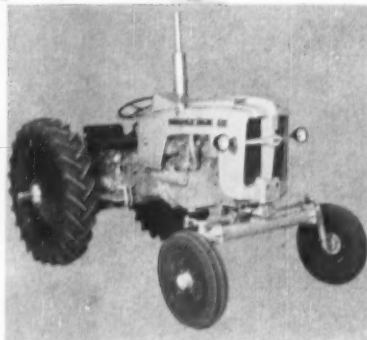


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Minneapolis Moline's new 445 uses a Twin Disc SP-506 ("wet" type-multiple plate) Clutch as a live power take-off. Clutch is within transmission proper and operates in bath of oil.

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Three basic steps to modern merchandising



"... people don't buy 'things'... they buy 'Consumer benefits.'"

JUDSON S. SAYRE

President, Norge Div., Borg-Warner Corp., before Conference of Associated Business Publications, Chicago, Ill.

Everyone agrees that the great challenge in our expanding economy is the challenge of distribution. The key to our distribution is the retail dealer and his salesmen. . . .

As a result of experience and observation, it is my opinion that, given a product equal to competition, a sales organization equal to competition, and equal prices, the difference between success and mediocrity is usually "Creative Merchandising." What distinguishes the superior merchandising of one company over another is generally the ingenuity and quality of the ideas invested in the planning. It is the "Total Concept" which accompanies the presentation of the product and which stimulates people all down the line to devote themselves to moving this product. Factories turn out "things," but people don't buy "things." They buy "ideas," commonly labeled "Consumer Benefits." Dealers buy "ideas"—which are interpreted to them as a "Selling Plan" rather than a "Buying Plan." My own concept of marketing in our industry and the governing factors which motivate my thinking and planning are as simple as this:

1. All of our resources and efforts—building, equipment, and people; planning, buying, production, engineering, operating, advertising, and merchandising—are directed to one,

all-important objective . . . to produce an increasing volume of sales.

2. The best product, the finest organization, the most brilliant advertising and promotion we can devise—all these remain nebulous, unless and until that product and a maximum number of consumer prospects are brought face to face, under the most favorable circumstances, to induce these prospects to buy our product rather than that of a competitor.

3. Since our products are sold through retail appliance stores, then it must be obvious that the degree with which we can establish and control these favorable circumstances with our retail dealer organization—and in this degree only—can we achieve our sales goal.

Eight objectives of long-range planning



"The scope . . . should cover all major phases of business . . ."

ROBERT C. TAIT

President, Stromberg-Carlson Co., Div., General Dynamics Corp., before Industrial Economics Conference, Stanford Research Institute, Los Angeles.

Let's assume that for our purposes we want to develop long-range planning techniques for at least a five-year period, in order to obtain the most efficient and profitable use of our manpower, facilities, and funds during the next few years. If intelligently and honestly conceived, such plans should assist top management in making decisions with respect to:

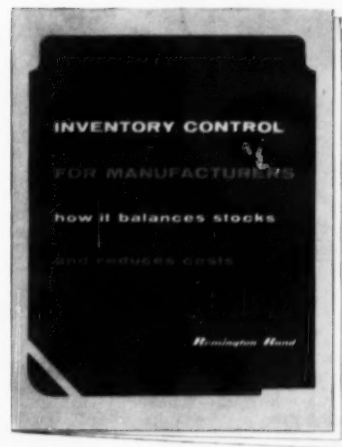
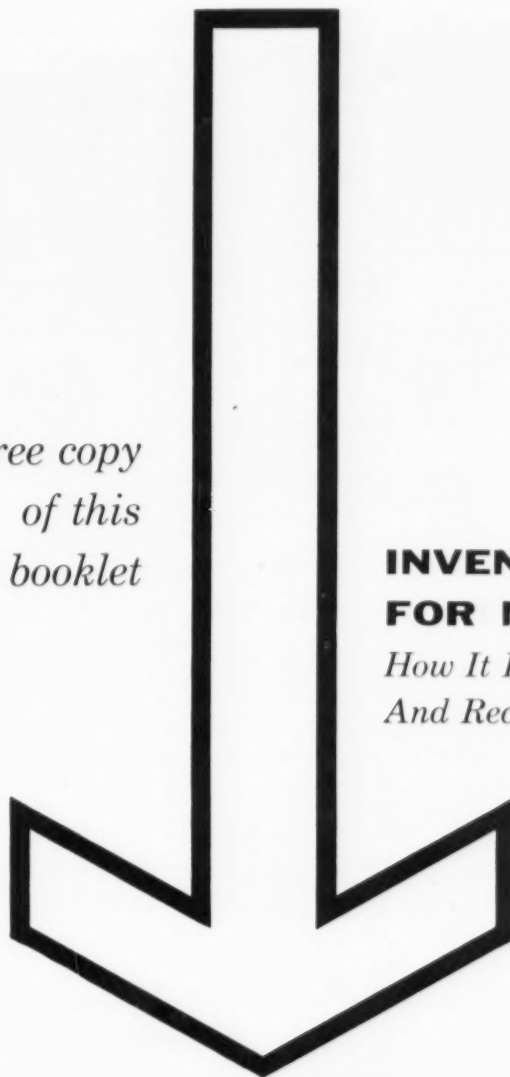
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No two plants have the same problems but the principles of a good inventory control record as outlined in this booklet, may be profitably adapted and applied to the needs of any business.

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DIVISION OF SPERRY RAND CORPORATION

3. Development and training of supervisory and management personnel.

4. A more effective long-range sales program.

5. Improvement in the procurement of purchased parts and materials.

6. A more effective means of smoothing out the production peaks and valleys, which should also lead to:

7. Improved labor relations;

8. A sounder basis for divisional and departmental budgeting.

The scope of such planning should cover all major phases of the business—types and quantities of products, methods of distribution, use of productive facilities, financial requirements, personnel requirements, procurement schedules, the timing and effect of automation and where it can best be applied, the extent and direction of research and development, profit margins and return on investment by product and division, and so forth, all, of course, weighed against that backdrop of the general economy.

It seems to me there are two general approaches to this type of long-

range planning: One is to set up desirable goals by products, departments, and divisions, and then try to figure out how to reach these goals; and the other is to have each department and division of your company calculate its own future growth as accurately as it can without regard to other segments of the business or any particular emphasis on the most desirable goals.

Neither of these is right in and of itself, in my judgment, but rather the more nearly correct answer is likely to come from a combination of both; that is, you try to calculate the future growth pattern of a given product or series of products in a division of your company, then weigh that against what would appear to be the most desirable growth pattern, and then see how closely you can reconcile the two within the realm of practical limitations and fit them into an over-all pattern for your company.

Thus the roots of our long-range planning are decentralized to the individual departments and divisions of the business on what might be called a philosophy of "bottom-up planning."

Physical labor down, mental tension up?



EMILE F. DU PONT

Director, Employee Relations Dept., E. I. du Pont de Nemours & Co., before American Academy of Occupational Medicine, Cincinnati, Ohio.

It seems to me that the swift-moving changes in the nature of work in industry may be worthy of attention. We hear a great deal about automation, a new and convenient name for progress in technology which shifts the burden of physical—and frequently, mental—effort from men to machines. . . . But if we have less need for strong muscles, we have greater need for alert and vigilant minds. How do we stay alert when we are physically idle? What will be the effect on physiology? Will changes be

"... concern not only in industry, but in all walks of life."

necessary in industrial environments, such as the use of colors or noises to hold attention? We all know of the tendency to fall asleep or take our mind off our driving when touring over superhighways, simply because it becomes monotonous. Is there any chance that industrial duties will become so monotonous as to create similar problems?

The tensions of modern living, and their effect upon health, cause concern not only in industry, but in all walks of life. We have much less reason to worry than our ancestors, but our march toward greater security seems to be accompanied by a higher incidence of heart attacks and ulcers. What can be done to lessen tensions, or to eliminate their effect upon our health?

We also confront the potential problems involved in peaceful uses for atomic energy. Can we find a way that will be economical, as well as safe, to make the necessary repairs in event of breakdowns in atomic reactors used to generate electric power? Can we devise methods which will permit the utilization of atomic energy in chemi-

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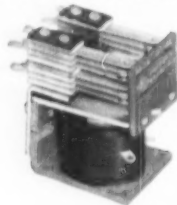
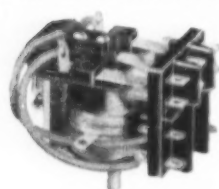
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Polyethylene film strips of pockets for Bay State Abrasive Products Company, Westboro, Mass., are supplied by **Austin Industries, Inc.**, Marlboro, Mass.

*"strips of pockets" package
small parts more efficiently*

New polyethylene film package improves materials handling

Compartmented packages formed by heat-sealing film made of **BAKELITE** Brand Polyethylene serve several useful functions in packaging industrial parts.

In the illustration, small grinding wheels are packed 10 to a pocket, 10 pockets to a strip, instead of 100 loose in a bag or box. Filled pockets in the film strip are heat-sealed in a single operation. Perforations between pockets permit tearing off one unit at a time.

This type of package simplifies counting for shipment, inventory and issuance of the parts. Other advantages are quick inspection and identification through the transparent film, easy arrangement of parts in correct order of use, standardization of master shipping containers. And, polyethylene is a solid lubricant for parts which must be protected against damage.

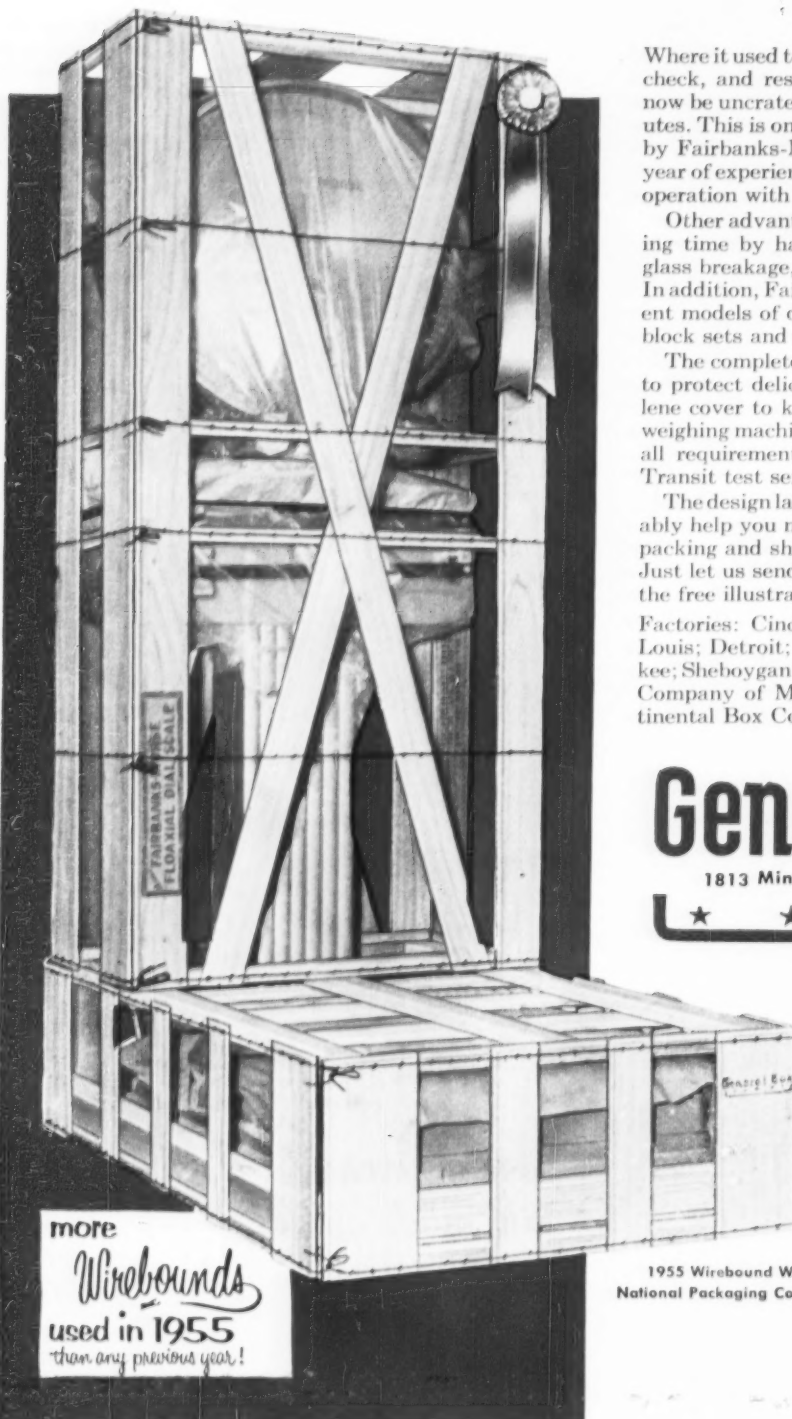
Your packaging supplier can show you *many ways* in which film made of **BAKELITE** Brand Polyethylene builds business and profits. Call him today, or write for our case history booklet to Dept. MT-42.

*It pays to package
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How General Box engineered wirebounds cut packing time, damage loss, and setup time for a leading supplier of platform scales



more
Wirebounds
used in 1955
than any previous year!

Where it used to take about four hours to assemble, check, and reseal a scale after shipment, it can now be uncrated and adjusted in less than 45 minutes. This is one of the major advantages reported by Fairbanks-Morse after tests and more than a year of experience with wirebounds designed in cooperation with General container engineers.

Other advantages include the reduction of packing time by half and elimination of losses from glass breakage, paint abrasion and other damage. In addition, Fairbanks-Morse is shipping 42 different models of dial scales using only two different block sets and six different wirebound crates.

The complete package includes special blocking to protect delicate mechanisms, and a polyethylene cover to keep out dust and moisture. These weighing machines in their L-shaped crates passed all requirements of the standard National Safe Transit test series.

The design laboratories of General Box can probably help you make significant reductions in your packing and shipping costs. It's easy to find out. Just let us send a man. And we'll be glad to send the free illustrated booklet, "General Box."

Factories: Cincinnati; Denville, N. J.; East St. Louis; Detroit; Kansas City; Louisville; Milwaukee; Sheboygan; Winchendon, Mass.; General Box Company of Mississippi, Meridian, Miss.; Continental Box Company, Inc., Houston.

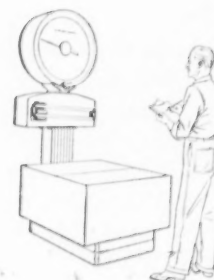
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1955 Wirebound Winner
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cal processes without imperiling the health of workers? It seems to me that a broad field is opening up here for research and practise in occupational medicine.

*Business needs
a good voice*



"... the values of business are too often misunderstood."

MELVIN H. BAKER

Chairman of the Board, National Gypsum Co., before American Management Association, Chicago, Ill.

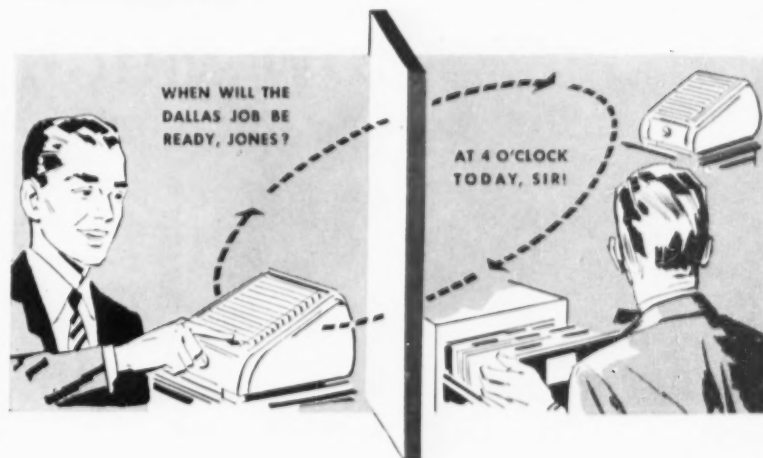
Our manpower is not unlimited. Increasing population will merely place a greater responsibility on the labor force. We simply cannot afford this erosion of our human resources. I think that business has a serious responsibility to do more than it is doing. . . .

Business' job to explain itself to its employees and the public will become more vital. Communication and education are not the sole solutions, but certainly they can go a long way. This new generation will take some careful nurturing. The turning off and on of those big automated monsters will not be so easy in a highly integrated factory. For this reason, labor dislocations will be more disastrous, more wasteful of our industrial energies than ever in the past. . . .

The push button factory will probably remove the worker further than ever from the end product of his labor. Possibly, the upgrading required for automation will still leave a good share of routine jobs. The problem of job satisfaction may, in any event, be as acute as ever. When thinking of this, one may well ask what is business doing to foster pride in the product and loyalty to the company?

Business cannot afford much longer not to tell its story—fully and frankly and forcefully. Telling it properly can only help to show how much business is contributing to prosperity for the benefit of all in the community. The full integration of employees and the public with the effort of business seems essential. Yet the values of business are too often misunderstood.

How to get more working minutes per hour!

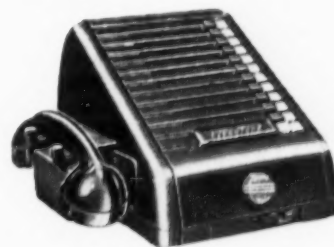


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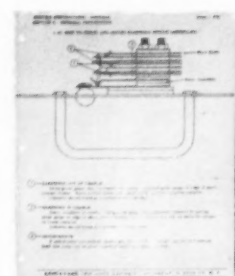
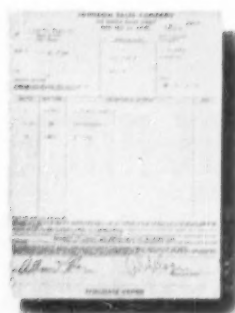
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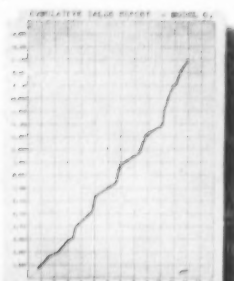
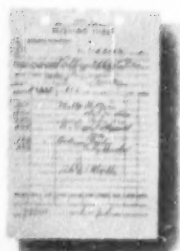
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business forms really cost you?

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Ozalid ends this waste of time and expense in every one of your standard business operations. Accounting, engineering, order-invoicing, personnel, production, purchasing, receiving, sales . . . in each of these, Ozalid quickly reproduces multiple copies without costly handcopying or re-typing.

For example . . . compare the old way with the Ozalid way in your order-handling and billing. The Ozalid system begins with an order form filled out by your salesman. In seconds . . . at every step in the order process, Ozalid turns out the copies you need, varied in size, color and content, according

to their function. From a single original, *written just once*, you produce all the paperwork needed to fill, ship and bill an order. You save the costly personnel time now required for repetitious re-typing and handcopying. Shipments and bills get out sooner. Copy errors are eliminated.

An Ozalid machine will make instant, dry copies of anything written, printed, typed or drawn on any paper that transmits light—at the lowest cost-per-copy of any similar process. Actually, a letter-size sheet of quality-controlled Ozalid copy paper costs you *less than a penny*.

End the high cost of "repeat writing" in your business. Have your systems man or office manager talk it over with his nearest Ozalid representative. See phone book or write Ozalid, Dept. C-4, Johnson City, N. Y.



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Turning Points

WALTER D. FULLER



Chairman of the Board, THE CURTIS PUBLISHING CO.

FULLER "When, as a young man of 21, I left Norwich, Conn., I certainly had no particular inclination towards the publishing business. I had carried newspapers as a boy and as a part of the newspaper route had sold a Philadelphia publication called 'The Saturday Evening Post.' But in moving to New York all I hoped was to find some place with a broader opportunity than seemed likely in Norwich. At that time business institutions in smaller New England cities were in the hands of sons of the proprietors.

"I may have been wrong in this regard, but it was what caused me to get a job in New York. Also I was making \$8 a week in Norwich. I could get \$12 immediately in New York, with a promise of \$15 in the near future. That seemed like 'big money' then, although after paying living expenses I found it was an illusion.

"I drifted into publishing purely by chance. The job I found in New York was in the safe deposit department of the Bank of the Metropolis, and after a year of it I decided I had better look elsewhere. A man in Norwich for whom I had done some work was asked to recommend the name of a young chap to work for a company manufacturing women's paper dress patterns. I applied and was given a job.

"When I reported for work I discovered that thirteen men altogether had been hired and gossip was that only two were to be kept. I don't know whether this was true or not, but it put me hard at work. I was lucky enough to sell a few accounts and was then given a road job.

"Some months later I received a telegram to

When a successful man attempts the selection of the one decision that changed his life, he very often finds it a difficult task. Yet somewhere, in or near the beginning, a decision was made and Mr. Warren Vierow asked several of today's leading executives to tell about their "Turning Points." While these men will never know "what might have been" they are fully aware that positive action was the key. Here are two more statements from Mr. Vierow's collection.

PAUL F. CLARK



President, JOHN HANCOCK MUTUAL LIFE INSURANCE CO.

come to the office and did so, fearing I was to be fired. Instead I was told that since I had worked in a bank I must know all about book-keeping and I was to join the company's publishing activity in their Circulation Department. I liked circulation work and after a year got what I thought was a better job with the Crowell Publishing Company. They soon offered me a permanent place, but within a few months I had the opportunity to become the subscription detail man with McClure's Magazine. This paid \$30 a week and to me, at 24, it seemed like a fortune. I stayed there two years and was then hired by a scout looking for an office man for The Curtis Publishing Company.

"There is certainly nothing about any of these moves that indicates any great advance thought. It was circumstances, calculation, and interest in the job which caused me to head for Philadelphia. I was 26 when I made this move and the year was 1908. Then followed successively Office Manager; Manager, Accounting Department; Comptroller; Secretary, Second Vice-President; First Vice-President; President; and Chairman."

CLARK "Advancements in business might be compared to climbing a mountain. As a young man choosing life insurance selling as a career, my decision was based on a desire to get the things I hadn't had. When I accomplished this purpose, I had reached the first pleasant plateau and might have remained there, if another motive had not urged me on. When I became a general agent with responsibility for the success

of other men, I took another turn in the road, based not alone on a desire for greater material possessions, but by a desire to help other men make good in the business.

"It was not until I had been a successful general agent for many years, however, that I realized I wanted to go on working for something beyond money. Here was a business which had done much for me, in which I had prospered. Throughout my career I had gained knowledge of its many operations. Not only did I feel the necessity of giving back to the business something of what it had given to me, but I realized that anything I had achieved was because of some talent or combination of talents which I had been fortunate enough to possess.

"In looking for a pattern in the lives of men who had contributed something important to their times and to the society in which they lived, I was struck by the fact that all appeared to have one thing in common—a sense of accountability for their own talents.

"When I took the turn which brought me out of the sales force of the John Hancock and into its home office as vice-president, later to become president, it was because of this strong sense of accountability. There are compulsions in life which a man cannot ignore and they are expressed in many ways, but the compulsion to use one's talents to the utmost is one which I believe I share with many others. Every man has something unique to give to the world. When he decides to give it wholeheartedly, he turns the corner toward a satisfying career."

On the iron ranges... the taconite giant awakens

THERE IS A GIANT named Taconite on the great iron ranges of Minnesota. In a grip of fantastic hardness, he holds quantities of iron ore beyond the dreams of anyone. Today, in one of the mightiest assaults on nature ever undertaken anywhere in the world at any time in history, man is forcing the giant Taconite to release this ore.

Taconite an ore-bearing rock

Five Taconite processing plants are in operation or under construction in northern Minnesota. Their function is to crush the Taconite rock into the consistency of face powder, concentrate and form the powdered ore into agglomerates suitable for the blast furnace. To achieve this, more than a half billion dollars is being expended in research, process development and plant.

Standard Oil serves the Taconite industry

Much of the machinery being used to process Taconite is lubricated by products of Standard Oil. To render guidance in the use of Standard's lubricants and fuels, seven Standard Oil industrial lubrication specialists and engineers work out of Standard's Duluth office serving customers on the iron range. They provide technical service to the mines, processing plants and shipping facilities, and to the contractors who are building these installations.

Stores of fuels and lubricants are maintained by Standard within a few miles of the Taconite operations—Silver Bay, Taconite Harbor, Aurora, Virginia, Babbitt, Mountain Iron and Hoyt Lakes—so that equipment will not stop for lack of lubrication or fuel no matter what the hour or the weather. Standard makes laboratory facilities available to operators and contractors to help them (1) with analysis of oil, (2) in setting up lubrication schedules and (3) in establishing preventive maintenance programs. Men from Standard's home office in Chicago back up field forces with additional services.

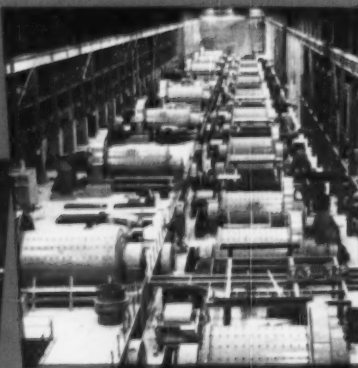
Thus Standard Oil assists the Taconite plants and their contractors. We would like to serve you. Call us at our office near you in any of the 15 Midwest and Rocky Mountain states. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

Maintenance foreman at Taconite mine and Standard lubrication specialist C. A. Rottluff (right), inspect shovel. Standard lubricants help keep equipment going no matter what the weather—summer heat or -30°; in dust, rain, snow, sleet.

Ore mining means railroading, too. Standard supplies fuels and lubricants to the iron range railroads. I. A. Westerlund (right), Standard's Chief Lubrication Engineer, goes over lube requirements with locomotive shop maintenance foreman.

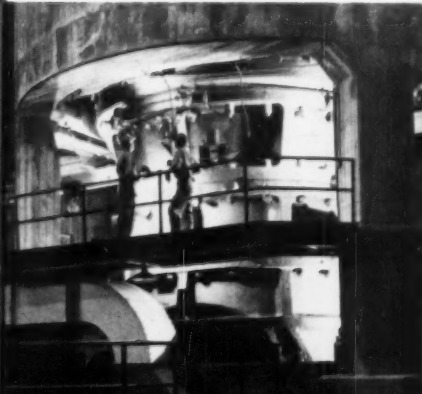


Frank Morgan (left), superintendent of maintenance for Munkin-Arundel-Dixon, prime contractors on one Taconite project, discusses lubrication with R. A. Angst, Standard Oil Lubrication Engineer. On-the-spot technical service by men such as Bob Angst helps customers select best lubricant.



In this enormous rod and ball mill installation, new frontiers in iron ore production are opening.

First stage in Taconite processing occurs here as rock from mine undergoes initial crushing. New engineering developments in ore processing are almost commonplace as Taconite project development proceeds. Standard Oil lubricants keep pace.



STANDARD OIL COMPANY
(Indiana)

The Trend of BUSINESS

- ▶ New Sales Records
- ▶ Headaches in Autos
- ▶ Building's Super-boom
- ▶ Scattered Layoffs
- ▶ Purchasing Power Up
- ▶ Failures Decline



THE POSSIBILITY of a new record for total business sales in 1956 was suggested by some of the business indicators in the early months of the year. Consistently buying more than in booming 1955, consumers astonished even some of the optimists. Percentage gains from a year ago in retail volume widened to 6 per cent in the first half of March, ranging geographically from about 2 per cent in the Pacific Coast region to 7 or 8 per cent in the East and Middle West. There was, similarly, a rise in wholesale trade, amounting to about 8 per cent.

Manufacturers' sales dropped off a bit between December and January, but only because of the usual seasonal slackening in some lines; volume was 12 per cent above a year ago, in spite of the reduction in automobiles. While manufacturers' new orders dropped slightly, they continued to exceed shipments; unfilled orders rose and were about 20 per cent higher than a year ago.

Retail sales were unusually high, even in automobiles. The *Automotive News* estimated that new car sales in February may have set a record for the month at slightly more than half a million units. While the dollar sales of automobiles and parts, at \$2.8 billion, were about 3 per cent above a year ago, the over-all figures camouflaged a struggle of varying intensity among automobile dealers. All-out selling campaigns waged by dealers in an effort to reduce their unprecedentedly large inventories of unsold cars were usually effective—but profit margins were often pared to the barest bone. Reports were heard increasingly of the voluntary retirement of some of the older dealers. Failures among auto dealers, at 32 in the first two months of

1956, were almost twice as numerous as a year ago, while the liabilities involved were more than five times as large. The majority of the country's new car and truck dealers lost money on sales in January, according to the National Automobile Dealers Association.

Some encouragement to those engaged in the rigorous competition appeared in the form of the Federal Reserve Board's annual survey of consumers' buying intentions. According to the survey, the public plans to buy a record, or near-

record, number of cars, homes, and household appliances this year.

Generally very optimistic about their economic futures, four times as many consumers thought they would be making more money a year from now as thought they might make less. Indeed, most of them at the time of the survey were making more than last year; personal income in January was at a near-record rate, higher than in any previous month in history, except one.

Notwithstanding the ebullience of the consumers, experts closest to the industry expect a dip in automobile buying in 1956. Sales of some 6,500,000 cars, 12 per cent fewer than 1955's 7,400,000, are expected by Arthur O. Dietz, president of the CIT Financial Corporation. The attention of automobile industry observers is focused on the Spring selling season, a decisive time of year for judging the vigor of automobile demand. Automobile production in the first quarter of 1956 was at the rate of roughly 6,500,000 cars a year.

Construction Outlays Rise

Whether or not consumers fulfill their plans to buy more new homes than last year, the construction industry can expect to prosper. Business' expenditures for new plant and equipment in 1956 are scheduled to reach \$35 billion, a whopping 22 per cent above 1955's record \$28.7 billion. The \$35 billion was arrived at in a survey of business expansion plans conducted jointly by the Department of Commerce and the Securities and Exchange Commission. Past surveys of planned capital spending by these two government agencies have erred only on the side of conservatism. The industries slated for the greatest expansion were the iron and steel, non-

Weekly Business Signposts

SELECTED BUSINESS INDICATORS	LATEST WEEK*	PREVIOUS YEAR WEEK*	AGE
Steel Ingot Production Ten Thousand Tons	240	245	228
Bituminous Coal Mined Hundred Thousand Tons	92	95	81
Automobile Production Thousand Cars and Trucks	158	157	201
Electric Power Output Ten Million KW Hours	112	111	98
Freight Carloadings Thousand Cars	686	698	651
Department Store Sales Index Number (1947-1949=100)	109	104	102
Wholesale Prices Index Number (1947-1949=100)	90	90	89
Bank Clearings Hundred Million Dollars	119	102	108
Money in Circulation Hundred Million Dollars	303	303	298
Business Failures Number of Failures	208	300	232

*Steel data are for the fourth week of March; coal and sales are for second week; all others for third week.

Sources: Amer. Iron & Steel Inst.; Bureau of Mines; *Automotive News*; Edison Elec. Inst.; Assn. of Amer. Railroads; Bureau of Labor Statistics; DUN & BRADSTREET, INC.

If cash working capital is tight

If your company is planning to supplement its working capital, investigate **COMMERCIAL CREDIT**. Our method is fast. Normally, cash is available within three to five days after first contact. The amount may range from \$25,000 to millions. The period of use is completely flexible, may vary from a few months to years. There are no preliminary costs and the one reasonable charge is tax deductible.

During the past year, companies from coast to coast used more than 600 million dollars of our funds to supplement their working capital. For complete information on how your company can use **COMMERCIAL CREDIT**'s method to its advantage, get in touch with one of these **COMMERCIAL CREDIT CORPORATION** offices:

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THE LABOR MARKET

* WORKERS NEEDED
* UNEMPLOYMENT AT 6 PER CENT OR MORE
OF THE LOCAL LABOR FORCE



Unemployment in the early part of 1956 was smaller than a year ago in almost all labor surplus areas, partly reflecting the outmigration of workers to expanding industrial centers. Persistent local unemployment was almost invariably the result either of long-term dislocations in the textile and coal industries or lack of an adequate industrial base to support an expanding local population. Data from the Labor Department's bimonthly summary of labor market developments.

ferrous metals, and machinery manufacturers. While no industry planned to spend less than a year ago for new plant and equipment, textile producers generally expected a much smaller increase in their expenditures than manufacturers in other lines.

The forecast for plant and equipment outlays was confirmed to some extent by the volume of contract awards for future construction reflected in the reports from the F. W. Dodge Corporation. Contracts awarded in February were valued at almost \$1.9 billion, a new record, 18 per cent higher than a year ago. For the first two months of 1956, non-residential construction contract awards were 17 per cent above the high 1955 level, residential awards were up 6 per cent, and heavy engineering construction, a gigantic 69 per cent.

Construction work actually put in place in the first two months of 1956 was valued at \$5.5 billion, 1 per cent more than in 1955. An upsurge in private industrial and commercial construction was largely responsible for the over-all gain—housing, farm building, and construction by the utilities dropped off somewhat.

New High in Steel

Responding to the high activity in construction and manufacturing, steel production in March was scheduled for a new high, running

close to 10 per cent above a year ago. New orders exceeded shipments by a similar percentage. While most of the steel ordering was for current use in manufacturing, some steel users tried to enlarge their inventories before the steel-wage negotiations open on June 30.

Notwithstanding the heavy backlogs, the steel mills often made a special effort to provide steel for the freight car builders to help boost freight car output to 6,000 cars a month from the present 4,000. About 6,000 cars a month are currently being scrapped. The railroads ordered 147,320 freight cars in 1955. At to-day's production rates deliveries could extend over a period of years. Some railroad men are hopeful that production may be pushed to the World War II record of 10,000 cars a month and held there for a while.

For industry over-all, the physical volume of output was about 13 per cent above the World War II level. The Federal Reserve Board's index of industrial production, at 143 (1947-49=100) in February, was almost unchanged from the level in the preceding few months, although 7 per cent above that in February 1955.

Employment Balanced

Factory layoffs increased in the early part of 1956, partly because of the reduced production in the



PROVED THROUGHOUT INDUSTRY FOR OVER THIRTY YEARS

Industrial leaders all over the world have used Rust-Oleum to stop and prevent rust for over thirty years. Rust-Oleum can do the same for your tanks, stacks, pipes, machinery, metal sash, wire fences, girders, etc.

RUST-OLEUM IS EXCLUSIVE

Rust-Oleum uses a specially-processed fish oil vehicle that penetrates rust to bare metal, dries right, and is free from objectionable odor. Accept no substitutes. Buy—and specify Rust-Oleum. You'll be happy that you did. There is only one Rust-Oleum—it is distinctive as your own fingerprint.



APPLY DIRECTLY OVER RUSTED SURFACES

Just scrape and wirebrush to remove rust scale and loose rust—then brush Rust-Oleum 769 Damp-Proof Red Primer right over the remaining rust, usually eliminating costly surface preparations. Then—follow-up with your desired Rust-Oleum finish color.

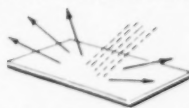


MANY COLORS, INCLUDING ALUMINUM AND WHITE

You beautify as you protect, because Rust-Oleum finish coatings are available in practically all colors, including aluminum and white. They use the same basic rust-inhibiting vehicle as Rust-Oleum 769 Damp-Proof Red Primer and so provide double protection.

GREATER COVERAGE— EASY TO USE

Rust-Oleum is so easy to apply by brush or spray that one man can often do the work of two. Because of Rust-Oleum's easy-flowing qualities, an average of 30% more coverage is usually received—depending upon the type and porosity of the surface.



PRACTICAL ANSWER TO YOUR RUST-PRODUCING CONDITIONS

Rust-Oleum dries to a firm, decorative finish that resists salt water, heat, fumes, sun, steam, humidity, and weathering. Whatever your rust problem—you'll find Rust-Oleum the modern, practical way to stop rust.

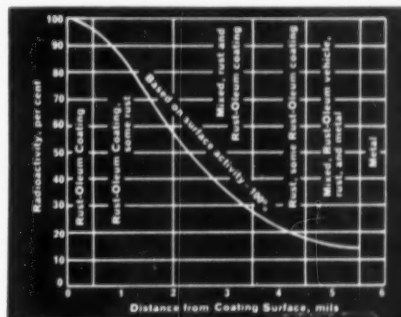
Facts

prove the economy of

RUST-OLEUM®

Geiger Counter traces Rust-Oleum penetration through rust to bare metal. The results of radioactive research prove that Rust-Oleum penetrates rust to bare metal. Rust-Oleum's *specially-processed* fish oil vehicle was radioactivated and formulated into Rust-Oleum 769 Damp-Proof Red Primer—then applied to rusted test panels. Geiger Counters then traced Rust-Oleum's *specially-processed* fish oil vehicle through the rust to bare metal. This penetration enables Rust-Oleum to be applied directly over sound rusted surfaces—usually eliminating costly surface preparations. Attach coupon to your business letterhead for your thirty-page report, "The Development of a Method To Determine The Degree of Penetration of a Rust-Oleum Fish-Oil-Based Coating Into Rust On Steel Specimens," prepared by Battelle Memorial Institute technologists.

Curved chart line shows Geiger Counter recordings of Rust-Oleum penetration at each mil level.



RUST-OLEUM®

STOPS RUST!



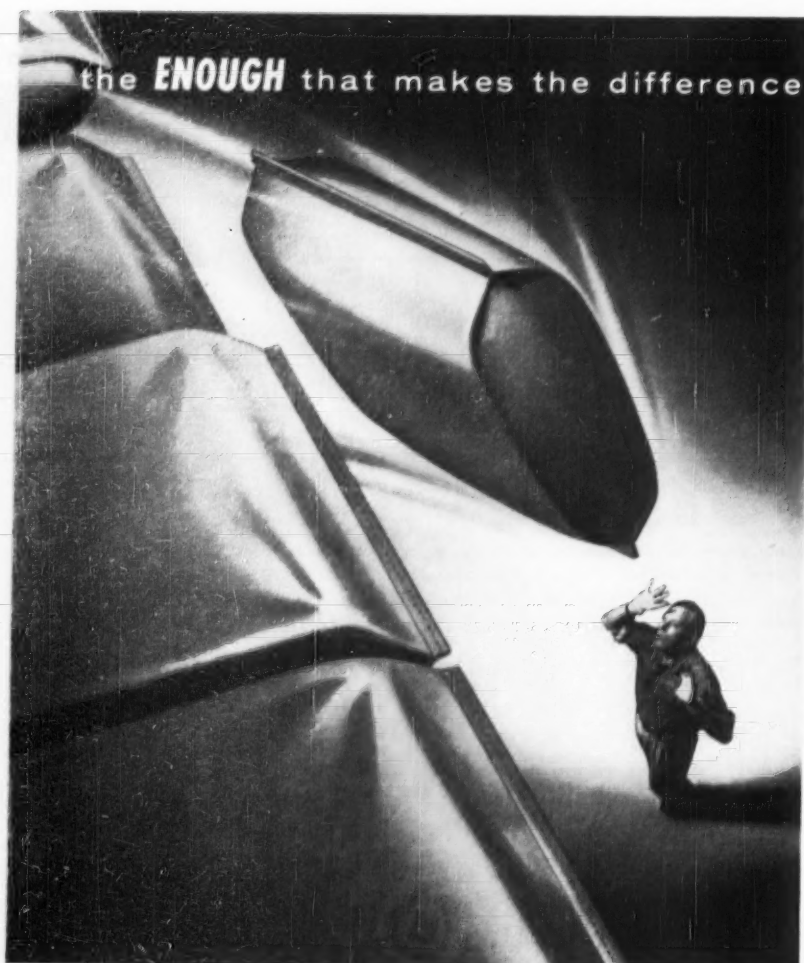
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Did you ever think that *ink* could be a large factor in increasing safety?

Hudson did. As a result, Hudson developed Non-Slip Ink, which is now standard on every Hudson Multiwall Sack. Shipped in bumping-trucks or humping boxcars, carried on fork trucks or stacked on the warehouse floor, Hudson Multiwalls *cling*. Both you and your customers gain extra security at no extra cost.

This faculty for going a step beyond the ordinary is why many leading firms now specify Hudson Multiwalls. If you feel that your own packaging might be improved, *it may profit you to get in touch with Hudson.*

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automobile and related industries. This, coupled with the usual Winter curtailments in agriculture and some other outdoor activities, resulted in a slight increase in unemployment in February. But the jobless, at 2,900,000, were still 15 per cent fewer than a year ago. Geographically, there were nineteen major areas of labor surplus (chart on page 20). Almost all of them reported declines in unemployment compared with a year ago. Some of the declines were as large as 25 per cent or more.

Some 62,600,000 workers were employed in February, about 5 per cent more than a year previously. Employment in the machinery industry rose more than usual for the time of year and the primary metals, chemicals, and printing industries had a record number of people on their payrolls.

Purchasing Power Up

The average factory worker worked 40.6 hours a week in February for which he was paid \$78.36, the same as in January, but \$3.62 more than a year ago. Some 2,000,000 workers had their wages increased when the new federal \$1 minimum wage rate became law on March 1. The impact will be felt chiefly in the South, where an estimated 28 per cent of the factory workers were below the new minimum wage scale.

But wages at some plants were due for a cut. At factories where wages are geared to the Consumers' Price Index, and these are almost entirely in the automobile industry, two consecutive monthly declines in the index meant a wage cut of about a penny an hour. Roughly 1,000,000 wage earners were affected, about half of them employed by General Motors.

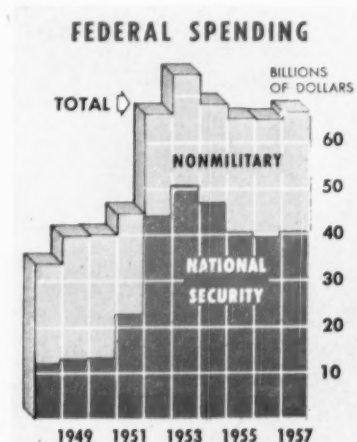
For the majority of workers, the decline in the index signalled a welcome rise in their purchasing power. With his higher earnings the average worker could buy about 5 per cent more in February 1956 than he could a year previously, even though the prices he had to pay were still slightly higher than last year.

The Consumers' Price Index for January stood at 114.6 (1947-1949=100); this was fractionally below December's level, because of slightly lower prices for home furnishings,

food, apparel, and transportation costs. Rents, medical and personal care, reading and recreation, and other goods and services were up in price. A year ago the index was at 114.3.

Wholesale Prices Strong

That the decline in consumer prices might be temporary was suggested in the wholesale price averages. The prices of the major commodities—farm products, processed



While Federal spending may increase in fiscal 1957, a greater rise is expected in Federal receipts (up to \$66.3 billion from \$64.5 billion in 1956) which should permit a small reduction in the towering Federal debt.

foods, and industrial products—edged upward. Strong support for prices was implied in both public and private spending plans. The proposed Federal Government expenditures are charted above.

The Pay-Off

Installment buying tapered off in January for the first time in a year, although automobile credit was virtually unchanged. It was the consensus among leading finance company officials that consumer debt may increase but slightly during 1956. Buying terms are thought to be about as easy as they are to become.

While the purchases of retail automobile finance contracts by one of the largest finance companies in the first two months of 1956 were 20 per cent larger than a year ago, the total volume of contracts outstanding increased far less noticeably because of the heavy volume of repayments on the debt contracted last year.

Repayments of installment debt,

Another Example of

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HYDRAULICS

in Automation

Ex-Cell-O Precision Cylinder Boring Machines shown below are finish-boring V-8 engine blocks. Like so many other high-production machines, these make generous use of hydraulics.

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The Vickers Application Engineer near you will be glad to demonstrate the many benefits you can obtain by using Vickers Hydraulics. Write for a copy of Catalog 5002B.

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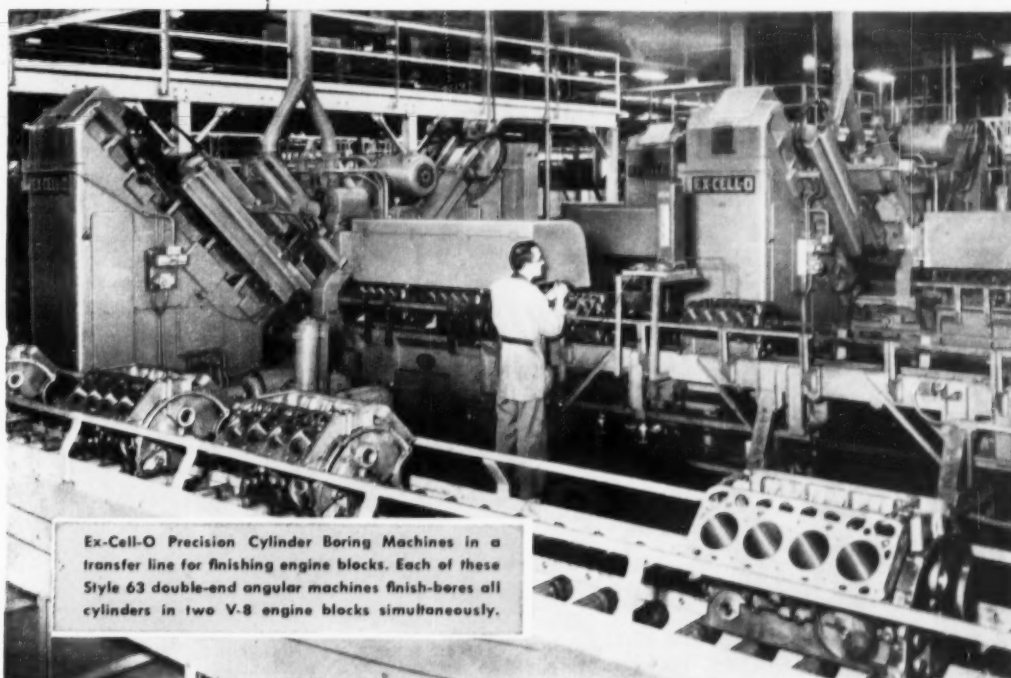
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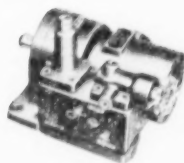
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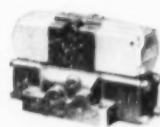
Ex-Cell-O Precision Cylinder Boring Machines in a transfer line for finishing engine blocks. Each of these Style 63 double-end angular machines finish-bores all cylinders in two V-8 engine blocks simultaneously.

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Used on Ex-Cell-O
Precision Cylinder
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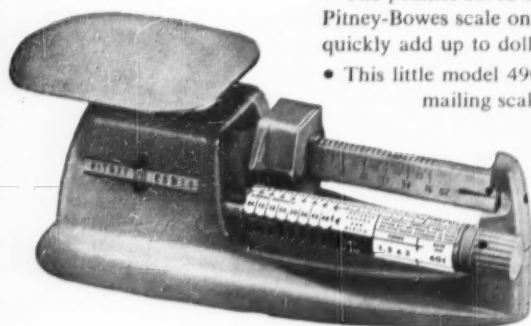


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small office needs. Its cylindrical computer shows accurately and clearly the amount of postage needed from ½ ounce to 1 pound, for all classes of mail. Prevents loss of postage through overpayment

...and loss of good will through underpayment, with resulting "postage dues."

- Larger models for larger mailers. Ask your nearest PB office to demonstrate, or write for free illustrated booklet.

FREE: Handy desk or wall chart of Postal Rates, with parcel post map and zone finder

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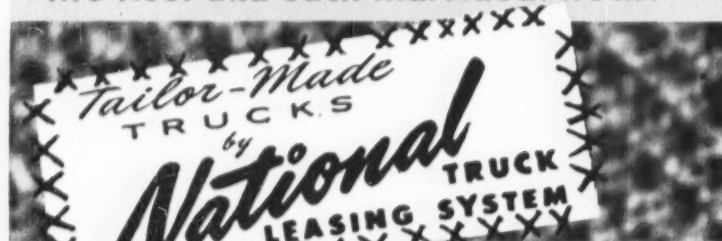


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which ordinarily decline in January, increased this year to \$2.9 billion, some 21 per cent greater than in January 1955.

While total consumer credit outstanding, including both installment and non-installment debt, dropped about 2 per cent in January, it remained almost \$6 billion higher than a year ago.

Failure Rate Down

While business failures dipped 2 per cent in February to 1,024, the toll exceeded last year's level of 877 by 17 per cent and represented a post-war high for the month of February. More concerns failed than in the comparable month of any year since 1941 when 1,129 occurred.

The rate of failure for each 10,000 enterprises listed in the DUN & BRADSTREET *Reference Book* declined slightly to 44 from 46, according to DUN's FAILURE INDEX. The index projects monthly casualties to an annual basis and adjusts

for seasonal variations. This rate compared with 39 failures for each 10,000 businesses a year ago, yet remained appreciably lower than the pre-war rate of 62 which occurred in February 1941.

Although the number of failures decreased from the preceding month, their liabilities continued to climb, mounting 15 per cent to \$49,189,000, a volume exceeded only once in the post-war period. All of this February rise came from large casualties involving liabilities of \$100,000 or more. While concerns failing were at a record level in this size group, casualties of lower size were less numerous than in January. Both large failures, involving more than \$100,000, and small failures below \$5,000 were half again as heavy as last year. The increase in medium-sized casualties was smaller, ranging from 3 to 17 per cent above the comparable level in 1955.

Manufacturing, retail trade, and commercial service had lower mortality in February, while the toll

WHY BUSINESSES FAIL

Classification of Causes of Business Failures, 1955

Based on Opinions of Informed Creditors and Information in Dun & Bradstreet's Credit Reports

APPARENT CAUSES	COMML.					
	MFG.	WHOL.	RET.	CONST.	SERV.	TOTAL
NEGLECT.....	3.8	5.1	5.1	5.3	3.7	4.8
Bad Habits.....	0.6	1.2	1.2	1.8	0.7	1.2
Poor Health.....	2.8	2.7	2.8	2.4	1.4	2.6
Marital Difficulties.....	0.3	0.6	0.5	0.6	0.7	0.5
Other.....	0.1	0.6	0.6	0.5	0.9	0.5
FRAUD.....	2.3	3.3	2.2	1.4	1.2	2.1
Misleading Name.....	...	0.1	0.1	0.1	...	0.1
False Financial Statement.....	0.3	0.5	0.5	0.3	0.2	0.4
Premeditated Overbuy.....	0.1	0.2	0.1	0.1
Irregular Disposal of Assets.....	1.6	2.5	1.2	0.8	0.6	1.3
Other.....	0.3	...	0.3	0.2	0.4	0.2
INEXPERIENCE.....	91.4	89.7	91.1	91.5	93.0	91.3
Inadequate Sales.....	50.2	48.5	48.9	30.7	47.2	46.7
Heavy Operating Expenses.....	7.4	5.4	4.5	17.7	7.9	7.1
Receivables Difficulties.....	13.4	18.3	5.5	16.0	5.6	9.8
Inventory Difficulties.....	5.9	11.1	11.7	1.2	1.4	8.3
Excessive Fixed Assets.....	12.8	2.9	11.9	6.6	17.7	9.1
Poor Location.....	0.5	0.7	5.6	0.4	2.0	3.1
Competitive Weakness.....	17.0	19.1	22.3	26.1	22.2	21.4
Other.....	5.1	3.7	2.8	9.0	4.2	4.3
DISASTER.....	2.2	1.6	1.2	1.0	1.2	1.4
Fire.....	1.3	0.6	0.7	0.1	0.7	0.7
Flood.....	0.2	0.3	0.1	0.1	...	0.1
Burglary.....	0.1	0.1	0.1	0.1
Employees' Fraud.....	0.1	0.3	...	0.1	...	0.1
Strike.....	0.3	...	0.1	0.4	0.1	0.1
Other.....	0.2	0.3	0.2	0.3	0.4	0.3
REASON UNKNOWN.....	0.3	0.3	0.4	0.8	0.9	0.4

While the percentages in the broad categories of apparent causes of failures (Neglect, Fraud, Inexperience, and so on) add to two per cent, the sum of the specific causes may exceed the total for the category because some failures are attributed to a combination of specific causes.

*How much would you guess a Revo-File
can save you the first 37 minutes in your office?*



\$25.00

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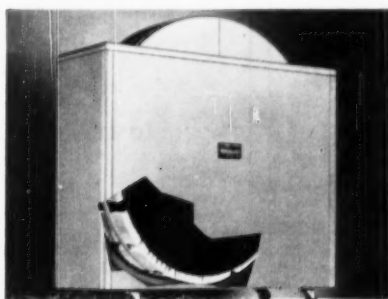
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\$200.00

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COMPANY _____

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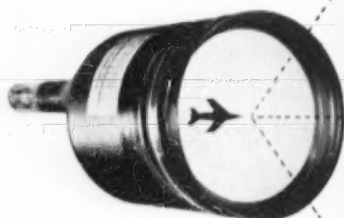
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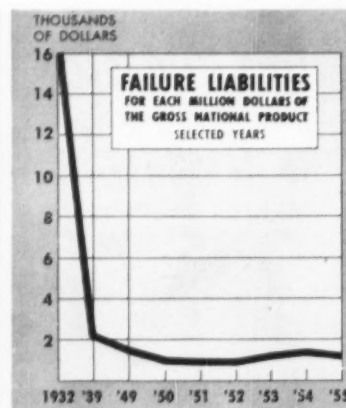
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Failures in the first ten weeks of 1956 averaged 12 per cent above a year ago, and liabilities were up by a similar percentage. But compared with the gross output, failure liabilities were no more distressing than in 1955.

in wholesaling rose to the highest level in eleven months and in construction to a 23-month record. The upturn among wholesalers occurred largely in the building materials trade; general builders and sub-contractors accounted for the construction rise. In manufacturing, the dip between January and February was noted in textiles and apparel and in miscellaneous small industries. Tolls in other manufacturing lines held steady or increased, notably the machinery group which had the most failures in a year. The service decline centered in cleaning establishments, whereas the downturn was general in the retail trades. In fact, only two retail lines, drug stores and eating and drinking places, had apprecia-

FAILURES BY DIVISIONS OF INDUSTRY

(Current liabilities in millions of dollars)	Number		Liabilities	
	1956	1955	2 Months 1956	2 Months 1955
MINING, MANUFACTURING, Mining—Coal, Oil, Misc.	411	383	\$32.1	\$30.6
Food and Kindred Products	40	37	1.7	1.0
Textile Products, Apparel	102	92	6.0	3.7
Lumber, Lumber Products	62	40	3.7	1.3
Paper, Printing, Publishing	19	22	0.5	1.3
Chemicals, Allied Products	7	5	1.9	0.8
Leather, Leather Products	13	17	0.9	0.7
Stone, Clay, Glass Products	1	4	0.1	0.3
Iron, Steel and Products	22	26	2.8	4.6
Machinery	57	47	6.4	7.7
Transportation Equipment	13	10	1.3	1.9
Miscellaneous	71	73	4.4	4.8
WHOLESALE TRADE	214	218	9.4	8.7
Food and Farm Products	54	55	1.9	2.3
Apparel	14	13	0.4	0.3
Dry Goods	6	7	0.1	0.4
Lumber, Bldg. Mats, Hdware	29	23	2.0	1.0
Chemicals and Drugs	7	7	0.1	0.2
Motor Vehicles, Equipment	9	13	0.6	0.4
Miscellaneous	95	100	4.2	4.2
RETAIL TRADE	1046	868	29.6	18.6
Food and Liquor	162	146	2.2	2.4
General Merchandise	44	36	2.9	1.1
Apparel and Accessories	206	164	5.1	3.2
Furniture, Furnishings	155	131	4.7	3.8
Lumber, Bldg. Mats, Hdware	60	47	2.2	1.2
Automotive Group	115	72	6.3	1.6
Eating, Drinking Places	171	148	4.1	2.8
Drug Stores	26	18	0.5	0.3
Miscellaneous	107	116	1.7	2.1
CONSTRUCTION	267	200	16.0	16.7
General Bldg. Contractors	100	68	8.3	10.6
Building Subcontractors	154	122	6.9	5.1
Other Contractors	13	14	0.9	0.9
COMMERCIAL SERVICE	134	147	4.9	5.4
TOTAL UNITED STATES	2072	1816	92.1	79.9

Liabilities are rounded to the nearest million; they do not necessarily add to totals.



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BUSHNELL	FLORIDA BANK
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DELAND	FLORIDA BANK
FERNANDINA BEACH	FLORIDA NATIONAL BANK
FORT PIERCE	FLORIDA BANK
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MADISON	FLORIDA BANK
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OCALA	FLORIDA NATIONAL BANK
ORLANDO	FLORIDA NATIONAL BANK
PENSACOLA	FLORIDA NATIONAL BANK
PERRY	FLORIDA NATIONAL BANK
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THEY DIALED THE TEMPERATURES

... and a new concept in motor ventilation proved its worth



Among the several operating exhibits in the Howell Motormobile, one that seems to interest visitors most is the measurement of temperatures inside motors as they operate under varying loads. Engineers, presidents, production men and purchasing executives, all dial the temperatures, *feel* the relative coolness of the outside frames, and then *see* for themselves the ingenious design for heat-source ventilation that makes Howell Series 100 motors run so cool. While they're studying the built-in air passages of Howell's new stator, it's not difficult to recognize how efficient heat dissipation assures longer motor life and better protection against overheating.

In the course of visits to many manufacturing plants during the past year, the Howell Motormobile proved a number of things. One is that executives and operating personnel value on-the-spot, in-action ideas about electric motors and how they are constructed. Another is, despite the common assumption that all motors have similar operating characteristics, these men are quick to recognize real superiority.

In case you are not one of the estimated 10,000 people who will visit the Howell Motormobile in '56, may we suggest that you get the Howell story by other means. Howell makes motors of virtually every industrial type, from fractional to 300 horsepower. Write Howell Electric Motors Company, Howell, Michigan. We'll see that you get attention and information promptly.

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Large office or small, you'll find a hundred and one uses for this

completely different 3-in-1 copier. Chances are your savings the very first month—on *retyping and proof-reading alone*—will exceed its low cost.

See how thousands of offices are using Verifax Copiers today

Valuable tips for boss, secretary and office staff—based on actual case histories—are listed in new free booklet. For example—

- How to answer letters without dictation and typing
- How to eliminate "I quote" memos
- How to keep hot sales leads from turning cold
- How to stop running out of copies
- How to end slow one-copy routing
- How to conduct better meetings

Prices quoted are subject to change without notice



MAIL COUPON TODAY

EASTMAN KODAK COMPANY, Business Photo Methods Division
Rochester 4, N. Y.

Gentlemen: Please send me a free copy of "New Time-Saver—
New Idea for Every Office" and names of near-by Verifax dealers.

Name _____ Company _____

Position _____ Street _____

City _____ State _____

Kodak
TRADE MARK

bly more casualties than in January.

Construction and retailing failures were considerably higher than a year ago, 24 and 25 per cent respectively, whereas a mild increase of 3 to 7 per cent prevailed in other functions. More retailers succumbed than last year in all lines; tolls among general merchandise, apparel, automotive, and drug stores showed a marked upturn. The construction rise from the previous February was relatively sharper among general builders than sub-contractors. Manufacturing failures changed very slightly from 1955 except for a jump in the lumber and furniture industry to almost twice last year's toll.

All of the month's mild decrease was concentrated in three regions: The Middle Atlantic, West South Central, and Pacific States. The latter area had the fewest casualties since September 1953. Increases prevailed between January and February in five regions, while the toll in the West North Central States remained the same. Failures in the New England States climbed to the highest level since 1950, with marked increases in Massachusetts and Connecticut. In the Mountain Region, Colorado, Arizona, and New Mexico contributed largely to a post-war high, while East North Central casualties were the most numerous in two years, principally through an Ohio upturn.

THE FAILURE RECORD

	Feb. 1956	Jan. 1956	Feb. 1955	P.C. Chge.
DUN'S FAILURE INDEX*				
Unadjusted	50.9	47.9	45.6	+12
Adjusted, seasonally	43.5	46.1	38.6	+13
NUMBER OF FAILURES	1024	1048	877	+17
NUMBER BY SIZE OF DEBT				
Under \$5,000	159	178	108	+47
\$5,000-\$25,000	468	490	453	+3
\$25,000-\$100,000	282	303	242	+17
\$100,000 and over	115	77	74	+55

	Feb. 1956	Jan. 1956	Feb. 1955	P.C. Chge.
NUMBER BY INDUSTRY GROUPS				
Manufacturing	202	209	188	+7
Wholesale Trade	108	106	104	+4
Retail Trade	511	535	412	+24
Construction	141	126	113	+25
Commercial Service	62	72	60	+3

*Apparent annual failures per 10,000 listed enterprises, formerly called Dun's Insolvency Index.

†Per cent change, February 1956 from February 1955.

BUSINESS FAILURES include those businesses that ceased operations following assignment or bankruptcy; ceased with loss to creditors after such actions as execution, foreclosure, or attachment; voluntarily withdrew leaving unpaid obligations; were involved in court actions such as receivership, reorganization, or arrangement; or voluntarily compromised with creditors out of court.

CURRENT LIABILITIES, as used in The Failure Record, have a special meaning; they include all accounts and notes payable and all obligations, whether in secured form or not, known to be held by banks, officers, affiliated companies, supplying companies, or the Government. They do not include long-term, publicly held obligations. Offsetting assets are not taken into account.

"Muscle Savers" for Handling Sheet Metal, Heavy Dies or Parts...

Weld-Bilt HYDRAULIC LIFT TABLES



Easily lifts loads up to 10 tons — to heights from 26" to 42" — for production handling. Hydraulically operated through foot pump or electric operation controlled by foot switch, or push button. With or without wheels. Write for prices and bulletins. For information on our complete line write us or our nearby representative.

Hydraulic Lift and Pallet Trucks — Automatic and Portable Elevators — Conveyors — Drum Elevators — Skids — Special Equipment.

"Weld-Bilt"
PRODUCTS

SEE OUR EXHIBIT AT MATERIALS HANDLING SHOW, JUNE 5-8, BOOTHS 210-212-309-311.

WEST BEND EQUIPMENT CORP. MATERIALS HANDLING ENGINEERS

303 WEST WATER STREET • WEST BEND, WIS.

No. 1 in 50,000 Firms

Because It Outlasts
Ordinary Brushes
3 to 1



Speed Sweep
The brush with
the steel
back

27 Speed Sweep styles and sizes to meet every sweeping need. Write for prices today.

MILWAUKEE DUSTLESS BRUSH CO.
530 N. 22nd St., Milwaukee 3, Wis.

Champs with a new power punch!

These new Task-Force jobs pack the biggest power punch in Chevrolet truck history with the most modern engines in the industry! They're the new champs of every weight class with a V8 for every model and an automatic drive for every series!

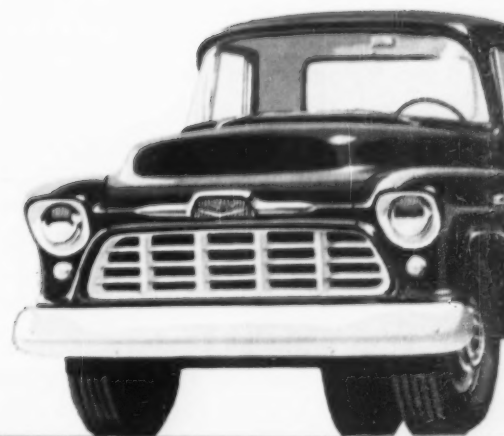


High-powered V8's and 6's!

Short-stroke V8's are standard in all L.C.F.'s and new heavyweight haulers (extra cost in other models), with the big new 322-cu.-in. Load-master in models rated up to 32,000 lbs. G.V.W., 50,000 G.C.W.! New sixes are more powerful than ever!

Work-saving automatic drives in every series!

There's revolutionary new Powermatic, with 6 forward speeds, for most middleweights and heavies! Hydra-Matic for all truck models rated up through 1½ tons! Both extra cost options. See your Chevrolet dealer for details. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



CHEVROLET **NEW CHEVROLET
TASK-FORCE TRUCKS**

Anything less is an old-fashioned truck!

COMPULSION OR COMPLACENCY

THERE is an almost monotonous overtone of optimism in the outlook for business in the months ahead. With surprising unanimity of opinion, business men, economists, and the general public believe that the economy will continue to be prosperous. While such feelings can provide a sound basis for progress, there are dangers behind them, too.

This is certainly not a suggestion that the forecasts may be wrong or that the forecasters may not be reliable. Rather it is an expression of uneasiness that such "agreeable" reports may foster a feeling of complacency. No one can promise unconditional prosperity, but how easy it is to overlook the conditions that limit most forecasts. It is the small but important word "if" that precedes the conditions and introduces the human element in the economic equation.

Much has been said about built-in stabilizers designed to hold the economy on an even keel. The word "cushions" has come to mean devices that will prevent sharp drops in business while leaving room for unlimited rises. To the economist, "automatic controls" are instruments that correct automatically any maladjustments that may creep into the economy. The gremlin in all such machinery is the unpredictable human element.

If the gross national product exceeds \$400 billion; if industrial production goes up by 5 per cent; if construction continues to increase; if employment, sales, and profits remain at or above peak levels—it will be because business men have actively worked toward these goals. It will not be because the forecasters have predicted it.

If business men are lulled into a false feeling of security by the forecasts; if they assume that "wishing will make it so;" and if they rely on the economists' intuition instead of their own initiative—the goals will not be reached. Stabilizers, cushions, and automatic controls have not yet been constructed that will guarantee continued prosperity.

There is reason to worry about what lies ahead. Perhaps the pendulum of time has now reached a point where one can say, "There is nothing to fear but optimism itself." And the fear might be directed toward the kind of optimism that creates complacency and dulls the desire to press on.

The purpose here is to inject a note of realism, not pessimism, in the current outlook. The picture painted by the forecasters represents possibilities rather than promises, goals rather than gifts. The estimates for this year reflect levels that can be reached by business men who work optimistically toward them. They are not levels that can be reached through optimism alone. They will be reached by those whose optimism generates compulsion rather than complacency.

Perhaps the admonition to "read everything, but believe nothing" is not too extreme. At least it may help to instill an air of caution in the attitude of business men toward the passive acceptance of goals established by others. It is far better to build than to borrow in forward planning. It is better to create than to accept the goals of to-morrow. It is better to be driven by compulsion than to be deluded by complacency in the efforts to succeed.

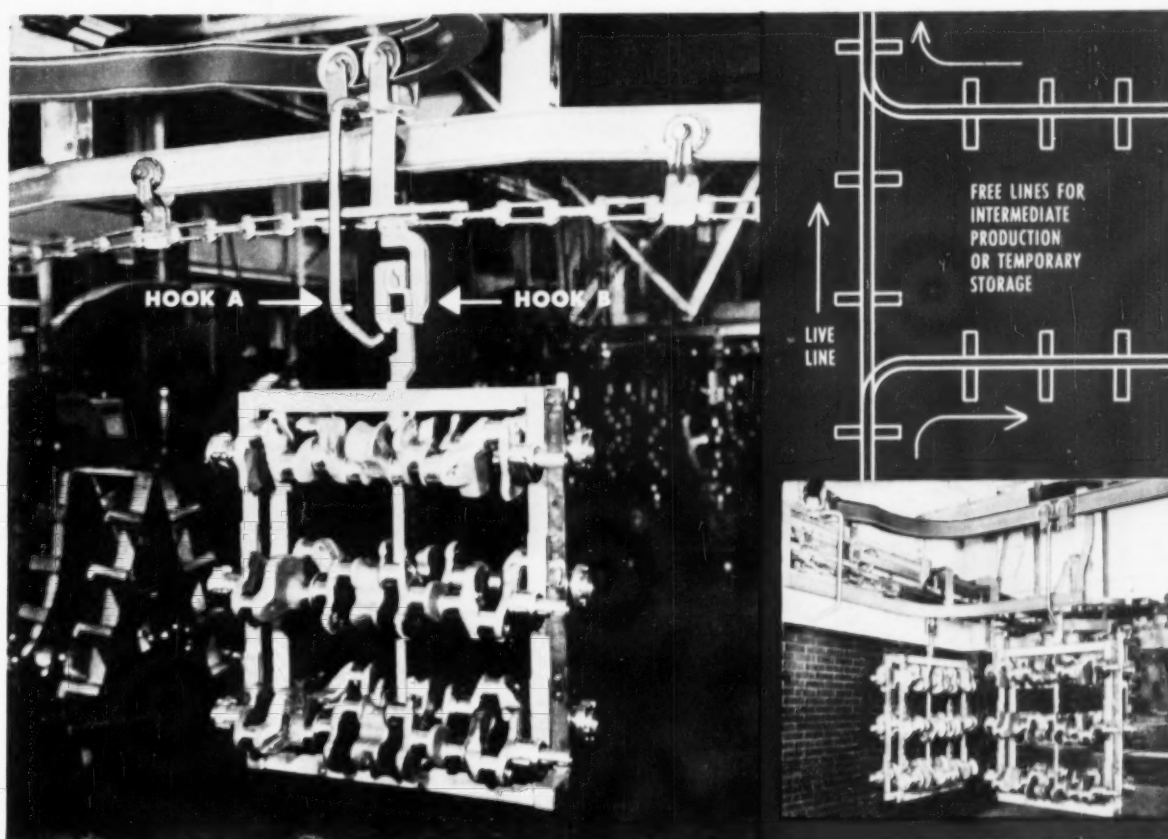
The Editors



This month's cover scene of an industrial area in New Jersey fits especially well with the special emphasis material on industrial site evaluation in this number. Skimming down the Pennsylvania's main line route from New York to Philadelphia such well-known names as Esso, International Harvester, and Merck flash by along with a host of others. High on any list of plant site criteria is the proximity to commercial arteries. Whether the highway be of concrete, steel, or water, it is lined by companies standing shoulder to shoulder in the favorable areas. Color transparency by Lockwood, Kessler, and Bartlett.

Speech-making is an extra-curricular activity of the editorial staff which often comes as a sequel to the presentation of specific articles in the magazine. Al Larke's story on "Safety" which appeared last June is still attracting invitations—his latest talk was before a meeting of the Newark Safety Council on March 6. And on March 14 Anne Gardner appeared on a program of the New Jersey Chapter of the American Materials Handling Society following her article on "Materials Handling" last September.

The mid-March report on plans of business men to spend close to \$35 billion for new plant and equipment this year ties in with the editorial on this page. It is clear and convincing evidence of what can occur when faith and action are combined. This joint report of the Department of Commerce and the Securities and Exchange Commission reflects a sharp rise in plant and equipment investment based on an anticipated increase in sales. More detailed information concerning the report is included in this month's "Trend of Business." Also included in this department is the very optimistic report of the Federal Reserve Board's survey of the buying plans of consumers.



Unloading from the power line to the free line is accomplished simply and quickly when loading hook A engages with hook B automatically. Parts are

engaged with the power line without danger of collision with incoming loads by simply reversing the disengaging principle.

Now - completely trouble-free automatic transfer from live line to free with Allied Conveyors' TRANS-FREE Principle

Nearly every conveyor line requires, at some point, the transfer of racks or parts from a continuous power driven conveyor line to an auxiliary free line. In the past, this transfer could be accomplished only with a highly complicated system which was expensive to install and equally expensive to maintain.

Now, Allied Conveyors' Trans-Free (patent pending) can perform the job automatically at any point in the system without complicated electrical gadgets—with virtually no possibility of breakdown—and with practically no maintenance expense. This Allied Conveyors' installation automatically selects any given unit load and transfers it from a continuous power driven line to an auxiliary free line. These free lines can

be located at any point adjacent to the live line where intermediate production operations are to be performed or inventory is to be temporarily stored. When the part is required, it is automatically transferred back to the live line. The system is entirely automatic and completely interlocked to prevent colliding of incoming and outgoing loads.

Trans-Free is one of the many reasons why more and more manufacturers are turning to Allied Conveyors

for the kind of engineering ingenuity which will lower unit costs and speed production.

Whether your production needs involve modernization of present equipment or the design and engineering of an entire new conveyor system, you will find many useful ideas in this new booklet by Allied—*Conveyor Systems Case Histories*. Write for it today.



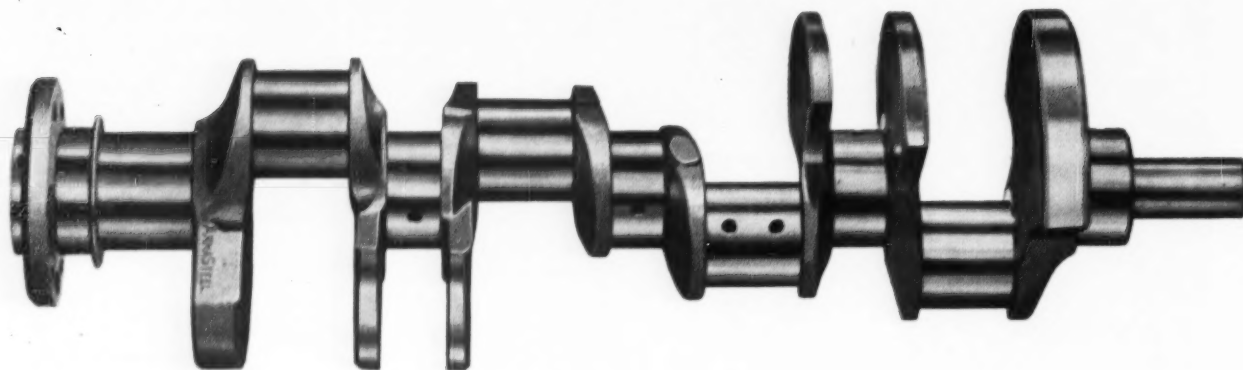
ALLIED CONVEYORS

ALLIED STEEL AND CONVEYORS

Division of the Sparks-Withington Co.

56-1 17311 Healy Avenue • Detroit 12, Michigan

WHY PONTIAC SWITCHED TO ARMASTEEL SHELL-CAST CRANKSHAFTS



For many years automotive engineers have sought to produce a successful cast crankshaft. But either the material or the method of casting did not give the desired results. Now, however, Central Foundry Division has solved both problems by means of their tough pearlitic malleable iron, ARMASTEEL, and their perfected shell molding process. Pontiac Motor Division is the first of the great automobile manufacturers to capitalize on the advantages of the new ARMASTEEL crankshafts. After conducting a long and exhaustive series of tests in the laboratory and on the road, Pontiac is now installing shell-cast ArmaSteel crankshafts in all 1956 models. ARMASTEEL, the metal, is a triumph of modern metallurgy that combines the advantages of both castings and forgings. Its resistance to fatigue and wear assures long life. Its rigidity results in minimum deflection and accurate alignment. Its high damping capacity allows it to absorb vibrant energy and thus contribute to noiseless operation.



The crankshaft made by the shell-mold process at Central Foundry results in substantial manufacturing savings. Because the castings are so close to the final finished dimensions, shell-cast ArmaSteel crankshafts are lighter and require considerably less machining and finishing. Shell molding also gives the engineer considerably greater latitude in design.

Many manufactured products can be improved and the costs lowered with shell-cast ARMASTEEL. If you are a manufacturer, engineer, production man or purchasing director, it will pay you to write us today for your copy of the book "ARMASTEEL" and the pamphlet "Shell Molding at Central Foundry."



CENTRAL FOUNDRY DIVISION

GENERAL MOTORS CORPORATION

SAGINAW, MICHIGAN • DEPT. 22

65



Although surrounded by steel partitions, the Records Center provides plenty of room in which to work. Safety ladders are used for reaching material on top shelves.

**PHOTO
VISIT**

STUDY IN SPACE CONTROL

Getting more efficient use from filing space, providing security, and saving money are results worth having.

HOW DO YOU provide additional space for more records when there isn't any available? That was the problem facing the Engineering Department of E. I. du Pont de Nemours & Co. In 1952 the maximum floor space had been assigned. Until recently that had been adequate, but additional documents and new project work forced Records Management in this Department to "find" more room. There wasn't any available.



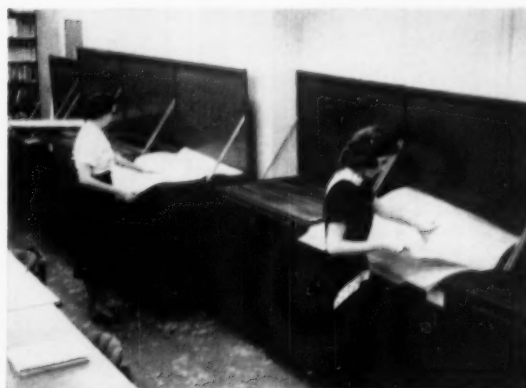
With top shelves seven feet from floor, more cubic area is utilized in new set-up. More savings are realized.

Previous experience with open-shelf filing gave the answer to space, but there was a second problem. How do you provide security? Company confidential and high-level Government documents and drawings demanded top security measures. To meet this need, a Record Center for Government work was erected using standard steel partitions within a Restricted Area. Complete protection was afforded by ultrasonic and contact alarm systems, guards, and fire-fighting equipment. Taking no more room than before, the solution put that room to more efficient use.

Pictures here show the set-up, may provide ideas for companies with similar space or security problems. In solving theirs, du Pont also saved some \$40,000 in floor space, personnel, and equipment, and \$24,000 is repeated every year.

JOHN DREXLER

More pictures on following pages.



Because of their size, tracings must still be stored in fire-proof tub files for maximum fire protection.

BOEING PARTS LIST PREPARATION TIME SLASHED

95%



The famed B-47 Stratojet Medium Bomber and all the other aircraft made by Boeing comprise a staggering total of parts running into the hundreds of thousands. The maintenance of a Priced Spare Parts List was a man-hour-devouring task until Colitho Continuous Pre-printed Direct Image Paper Plates slashed away 95% of the preparation time!

And with Colitho Plates, all chance of transcription errors and the need for retyping and additional proof-reading are completely eliminated. Uniform, original-looking copies—in perfect registration—are obtained in any amount desired!

This case history demonstrates the economy and efficiency countless businesses enjoy with Colitho Plates. We have a collection of other factual stories packed with valuable ideas. Just clip coupon for your copy of "Colitho Idea File".

Colitho

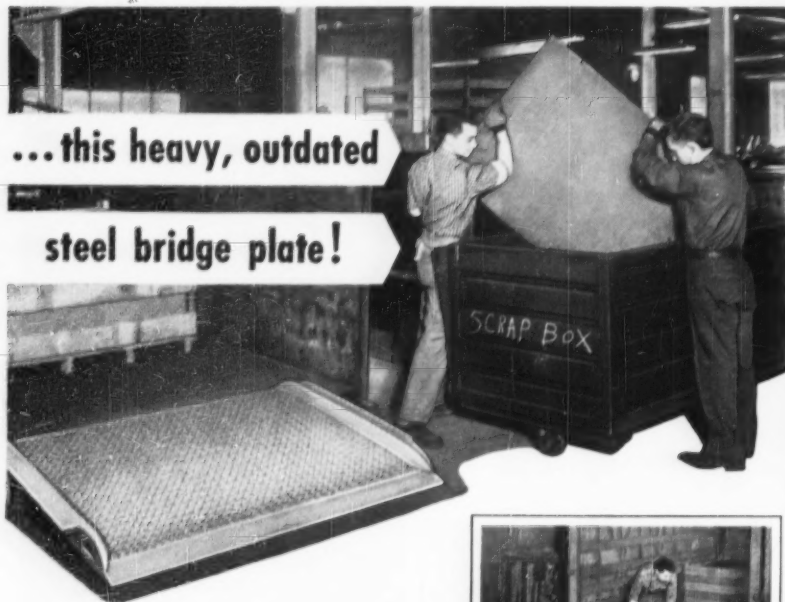
The "One-Write" Way To Run A Business

Colitho Division, COLUMBIA RIBBON
& CARBON MFG. CO., Inc.
864 Herb Hill Road, Glen Cove, N. Y.
Okay, rush the Colitho Idea File.



Name _____
Company _____
Address _____
City _____ Zone _____ State _____

the **MOST EXPENSIVE EQUIPMENT** this firm had on its dock was —



...this heavy, outdated
steel bridge plate!

The initial cost of this heavy steel plate was very little, but through the years it has cost this firm many times its original price! It wasted valuable man-hours, created loading bottlenecks, caused accidents and equipment-load damage. It definitely became the most expensive equipment on the dock!

But not any longer! Now it is being replaced by a light, strong Magliner magnesium dock board, engineered to the specific requirements of this dock and loading operation. Made of the world's lightest structural metal for easy, one-man handling, Magliner magnesium Dock Boards will eliminate costly bottlenecks, and speed shipping-receiving operations. They introduce new, greater efficiency to dock handling, and provide years of safe, dependable and economical service.

Don't let inadequate dock board equipment penalize your operation and drain company profits! It will pay you to get the facts about Magliner dock boards today.



Write for Your Copy
of DB-204 Today!

MagLiner
MAGNESIUM

DOCK BOARDS

"Wherever Dock Boards are Used—Magliners are Preferred"

MAGLINE INC. • P. O. BOX 14 • PINCONNING, MICHIGAN

Canadian Factory: Magline of Canada, Limited, Renfrew, Ontario



MAGNESIUM LIGHT!
Easy One Man Handling



MAGNESIUM STRONG!
To Fully Meet Your Equipment-
Load Requirements



**MOBILE LOADING
RAMP**

A loading dock on wheels! Services yard cars or highway trailers. One man moves it. Write for Bulletin DB-211.

for Rail or Truck



Restricted Area is entered through one door with a guard on duty during working hours. Maximum security demands that workers carry ID cards.



Requests for documents are handled through service windows which have steel sash, lock from inside. Heavy gage steel door has tumbler lock.



On other side of windows, work flow is efficient. Material is filed according to use—active in center, less active at bottom, least active at top.
More pictures on page 39.



How Wyandotte chemicals
help Calgon

work wonders with water

On an average day, U.S. industry uses about 70 billion gallons of water. Every drop is a source of potential trouble: It corrodes equipment, fouls up cooling systems with scale and slime, causes boiler tubes to fail, creates product and processing problems and waste-water headaches.

Water presents the same bugaboos in the home—from residential water-supply and heating systems to water for washing dishes.

Mr. W. W. Hopwood, who heads Calgon, Inc., states: "We treat water from source to disposal with an ever-growing list of industrial, commercial, and household products. We buy many of our raw materials from Wyandotte . . . chemicals such as soda ash, sodium bicarbonate, caustic soda, Kreelone,* and Pluronics . . . chemicals which are basic to water treatment, and help us 'work wonders with water.' We've found that Wyandotte not only offers uniform-quality products, but provides exceptionally helpful service."

If you're looking for a dependable source for chemical raw materials, give us a call. We'd like to serve you, too! Wyandotte Chemicals Corporation, Wyandotte, Mich. Offices in principal cities.

*REG. U.S. PAT. OFF.



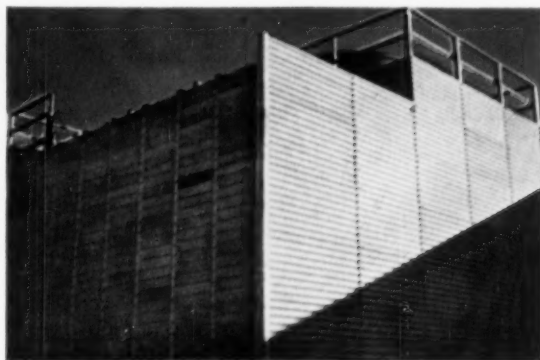
Wyandotte CHEMICALS

Organics, Inorganics—World's largest manufacturer of specialized cleaning products for business and industry

1 W. W. Hopwood heads Pittsburgh's Calgon, Inc., whose products encompass every phase of water treatment—from industrial and municipal to commercial and household. Wyandotte products, too, are used in many fields: glass, paper, ink, rubber, detergents, drugs, foods, textiles, metals—to list just a few. And Wyandotte customers enjoy the kind of prompt, dependable service they can schedule their production on . . . plus helpful technical assistance.



2 Famous Calgon household products work wonders in automatic dishwashing, water softening, cleaning. As a basic supplier to industry for more than 65 years, Wyandotte's chemicals often show up in the form of new or improved products for consumers.

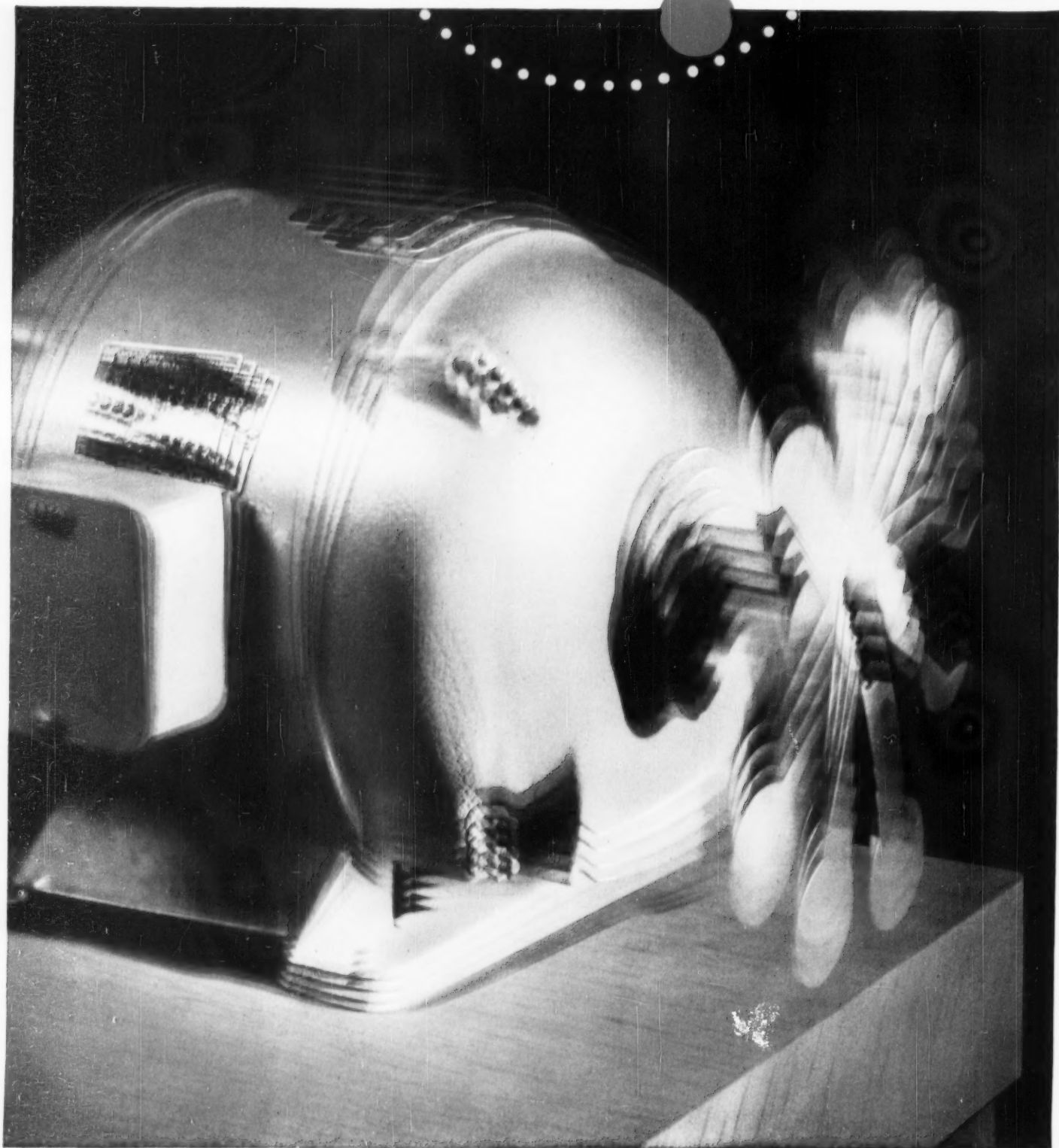


3 When cooling towers act up, Calgon products get rid of scale, prevent further scaling and algae growth. Wyandotte's unique surfactants, the Pluronic* series, are ideal for water-conditioning products because of their wide range of properties, and because of their exceptional flexibility and ease of formulation.



4 Need technical help? Skilled service-scientists in our modern, new research center are ready to assist you at all times. If you have a product or processing problem consistent with our manufacturing background, by all means call us in.

OFF CENTER • WEIGHT--
didn't damage bearings



--RUN AT FULL SPEED-- in this R&M motor!

*They're still in perfect condition
because they're **extra large***

No motor bearing was ever submitted to a tougher test! We mounted a five-pound weight—2 inches off-center—on the shaft of a standard R & M "All-Weather" Motor, then turned on the switch. As you can imagine, that motor practically turned handsprings with over 1,000 pounds of centrifugal force being placed on the bearings. It must be recognized also that this is all side-strain on the bearings. After twelve solid hours of this punishment, the R & M bearings were found to be in perfect condition!

Here's a dramatic example that shows

how extra-large, fully sealed R & M bearings pay off in rugged service. By "extra large" we mean bigger diameter than you usually find in a motor bearing... double-row race width... bigger balls that withstand greater load.

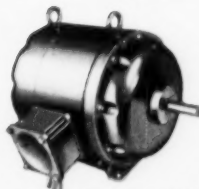
You'd never treat a motor this way, of course. But, *in terms of years of service*, a bearing with stamina like this is a bearing you can *forget*. We build oversize bearings into all R & M "All-Weather" Motors—at no extra cost to you—as just one more precaution against any chance of failure later on.

From 1 to 200 Horsepower...

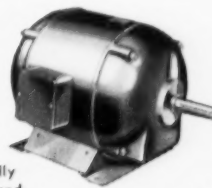
if it's an R & M, it's the Right Motor!



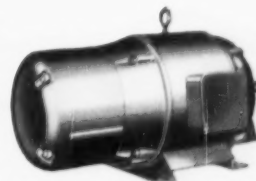
Frequency converters and alternators, 2½ to 15 kw.



Explosion-proof totally enclosed fan-cooled and chemical plant motors 1 to 40 hp.



Direct current motors 1 to 7½ hp.



Capacitor single-phase motors 1 to 15 hp.

ROBBINS & MYERS, INC.

SPRINGFIELD 99, OHIO BRANTFORD, ONTARIO



**Mail the coupon today—for more information
on the finest motor your money can buy!**

Robbins & Myers, Inc.
Springfield, Ohio

Please send illustrated Integral Horsepower Motor Catalog, showing all the extra features of R & M "All-Weather" Motors that are furnished at a standard motor price. We are also interested in:

- ☐ Explosion-Proof Motors
- ☐ Totally Enclosed Fan-Cooled Motors
- ☐ Capacitor Single-Phase Motors
- ☐ Frequency Converters & Alternators

Name _____ Title _____

Company _____

Address _____

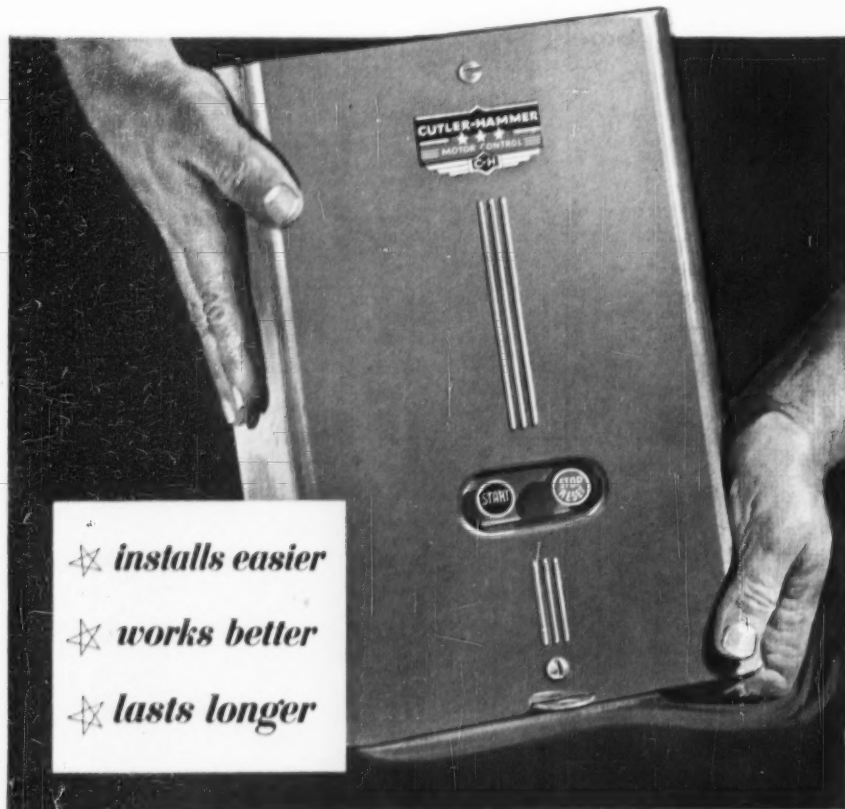
City _____ Zone _____ State _____

"All-Weather" is an R & M trademark

WHAT'S NEW IN MOTOR CONTROL? ★ ★ ★ GET IT FIRST IN CUTLER-HAMMER

Industry Here Finds Savings in the Stars

Cutler-Hammer Three-Star Motor Control

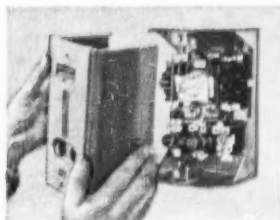


- ★ *installs easier*
- ★ *works better*
- ★ *lasts longer*

Thousands of electric motor users now know the three silver stars on the nameplates of the new Cutler-Hammer Three-Star Motor Control are no meaningless decoration. They stand for three entirely new standards in motor control value and performance . . . for important practical economies no industrial plant can afford to ignore.

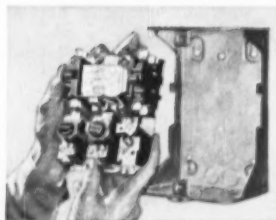
Compare Cutler-Hammer Three-Star Control with all other control and see the difference. It installs easier . . . so much easier that savings in installation costs often pay for this control. It works better . . . so much better that this control often pays for itself many times over just by the production interruptions it avoids. It lasts longer . . . so much longer that this control *never* requires maintenance care or cost in all normal use. Make your own comparisons and *know*.

Your nearby Cutler-Hammer Authorized Distributor is stocked and ready to serve you. Order from him today. CUTLER-HAMMER, Inc., 1436 St. Paul Avenue, Milwaukee 1, Wisconsin.



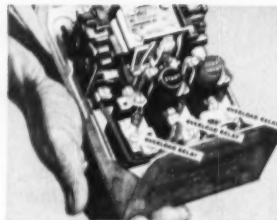
3-D Accessibility

Removing the wrap-around cover bares the entire starter for three-directional accessibility. It is wide open at front and both sides. You can see everything and reach anything. Wiring the starter is so simplified and complete inspection is so easy no detail is ever neglected.



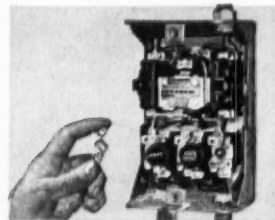
Unit Panel Construction

The entire starter mechanism can be removed from its case by simply loosening three screws. With mechanism out of the way, mounting case, connecting conduit and pulling wires is a cinch. A great time saver. No skinned knuckles. No damaged starter mechanisms.



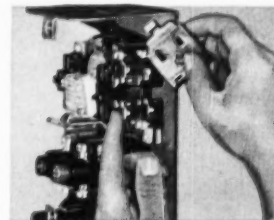
Full Three-Phase Protection

Only three overload relays can provide positive three-phase protection to stop needless motor burn-outs and production interruptions. And only Cutler-Hammer offers three overload relays in standard starters to avoid the costs and delays in special construction.



Adjustable Overload Coils

Only the accurate adjustment of overload protection permits motors to work harder without damage. Now more important than ever with newer type small frame motors. Adjustable overload coils here provide an accuracy of 3% instead of 10% to 12% in other makes of control.



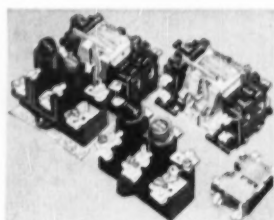
Superlife Vertical Contacts

Now the famous Cutler-Hammer dust-safe vertical contacts have been doubly improved. New light-weight design cuts bounce to reduce arcing. Also, arcing is now pressure-quenched. Contact maintenance care and costs are ended for all time in normal control uses.

For Control Panel Designers

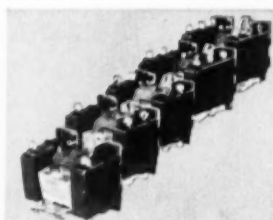


New Cutler-Hammer Three-Star Motor Control is star-studded with exclusive new features that provide opportunities for better control panels, for better motor protection and better control performance. Write now on company letterhead for panel design hand-book giving complete data.



New Control Components

All parts of the Three-Star Starters in NEMA Sizes 0, 1 and 2, as well as the complete starters on convenient unit panels, are available as components. Electrical interlocks provide additional control circuits as needed.



New Control Relays

Finest of control relays. 10 and 15 Amp. 2-3-4-5-6 poles. All contacts instantly convertible from NO to NC or vice versa. NO or NC status seen at a glance without removing cover. New armored coils color coded for voltage and frequency.



New Oil-Tight HD Pushbuttons

Amazingly compact, one-hole mounting, all-light, heavy-duty pushbutton units. Wide choice of button types and colors. Easily added additional contacts permit almost unlimited circuitry. Selector switches and indicating lights to match.

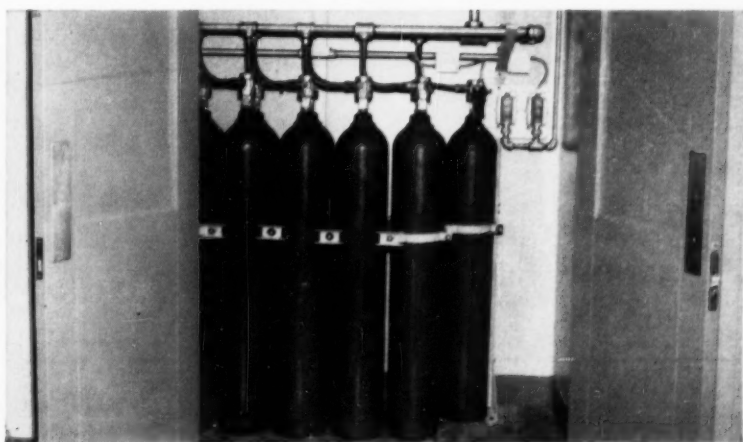
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Alarm system is controlled by three monitor switches which tie in with the Center and Restricted Area doors, operate on 24-hour separate settings.



Auxiliary alarm in another part of the building provides an emergency means for the guard to call additional aid. It ties in with Control Center.



Fire protection is centered around this grouping of CO₂ gas cylinders. Activated by thermostats, they release gas into the document center proper.

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It's not quite enough to judge executives by the usual measures of accomplishment—cost reduction, sales quotas, budget goals. Other measures of top-level performance are needed if a company is to continue to prosper.



Six Standards for Executive Conduct

PHILIP B. NILES

Vice-President and Director

The Yale & Towne Manufacturing Company

MAN HAS ALWAYS been concerned with his own conduct. Since earliest times, every form of social organization has been held together by ethical standards. Precepts of rectitude may even have preceded such ancient abstractions as religion and philosophy. Without them, group chaos and disintegration would be inevitable. Without rules of conduct, there could never be a society of people, but only a mass of unrelated homicidal individuals.

Conduct has not only been the infra-structure

of social organization, but a force in the primary mores of each individual. There are unquestionably complicated psychological reasons for this, but fundamentally, each of us seeks approbation for what we have done and each of us recoils from disapproval. If these primary needs did not exist, there would be fewer, or no, neurotics in the world, and the modern psychological sciences would not be concerned with such terminology as "guilt feelings," "anxiety," and "rationalization."

In the modern business world, the question of conduct is profoundly related to intracompany behavior. American industry, to-day, is growing toward an unpredictable magnitude. It is dynamic, proliferous, and fast-changing. In its technological ramifications and in its ubiquitous contact with every level of living, it produces the greatest single impact on the lives of individuals and the directions they follow. Yet, no matter how rapidly modern industry develops and changes, every company is nevertheless, as is

industry as a whole, a social organization, within which its members spend a major portion of their waking time, and from which they carry attitudes to family and other social groups. Obviously, conduct and ethical standards have the same integrating force in a company organization—even more so—as in any other form of social grouping.

The sense of conduct must therefore be a constant in industry no matter how rapidly and deeply other aspects of industry change. The sense of conduct must consequently be a matter of profound concern to management.

After many years of living and observing life in corporations, I have found too many business men unaware of the primary importance of a code of conduct as a factor in both their own and their company's progress. It is admittedly a difficult and seemingly vague subject. The corporation executive, in basic meanings, is no different from others. He, too, wants the nourishment of approbation and seeks refuge from censure. He, too, serves his ambitions and sense of good purpose through instinctive psychological *legerdemain*, so that very often he is one image to himself and a different image to others. To see ourselves as others see us is a hope of corporation executives, too.

The executive's concern with conduct, however, should transcend his individual needs. It is part of his management function. A sharpened sense of conduct based on an ethical awareness will always contribute to successful management, and, directionally, to a successful operation. The absence of this sense can create mediocrity in performance if not chaos. An executive may be educated to the hilt. Presumably he has experience and substantial knowledge of his particular responsibility; but if he does not know how to live within his corporate community, his endowments will be wasted.

The shedding of the more obvious psychological devices and human foibles is in reality part of the executive's discipline. Just as the trained surgeon has disciplined himself against the frailties of tears and jitters while in the operating room, so the successful executive through discipline follows clearly defined standards of conduct. The gap between what he really is and what he appears to be is very narrow indeed. If he is one of the best, he can sometimes see himself as others see him.

The very nature of a corporate society imposes its own requirements for enlightened executive conduct. There is no substitute for this. Every business process may eventually be automated, save the process of human behavior. This will always be a matter of judgment and emotion, and, therefore, always subject to personal discipline. From my experience, I have reduced executive behavior to six standards which I call "Personal Standards of Operation." They are as important, I believe, to the success of a company as clearly defined standards of manufacturing and sales operations and inventory control. These standards, in random order, follow.

Truth and Objectivity

Pilate said, "What is Truth?"—a profound question which has puzzled thoughtful men for thousands of years. In a corporation, complete truth is often hard to come by, not because business executives are liars, but because they have not schooled themselves to report facts as they are. The facts are adulterated by partisanship and embellishment; the important elements are too often diluted by a mixture of the unimportant. The personality of the reporter frequently intrudes upon the objectivity of the report. I am referring generally to reporting objectively, as opposed to reporting conclusions reached through emotional or partisan processes.



The AUTHOR

Philip B. Niles began his career, after graduating from Princeton, as a reporter for *The Wall Street Journal*. After public relations and executive positions with several companies, he became vice-president of Yale & Towne in 1940.

Every executive must constantly report to his associates what he saw or what he heard. He must train himself to give the essential facts simply and briefly, omitting nothing important, wasting no time on the trivial. This personal standard of truth and objectivity requires honest, accurate and complete transmission of fact purely to assist in management decisions and not, at the same time, to serve a psychological need of the reporter.

Reasoned Decisions

Conclusions and decisions are made on the basis of truth and facts. The soundness of his decisions can make or break a man, or the corporation he serves. Reason, then, is another standard. The venerable and respected Thomas Watson wasn't silly to put all those "THINK" signs around the IBM company. He commanded of his people reason or ratiocination, and judging from the pinnacle-achievement of his company, he asked for the right thing. Of course, I am using the word "reason" in its largest sense. In reference to the personal standard of reasoning, there is required a discipline of thought involving the approach to a conclusion through induction; and evaluation and interpretation of the conclusion. The fatal enemy of reason is the undisciplined expression of impulse, which more often than not stems from ignoble motive or prejudice. The achievement of this standard does

not require unique assistance, but self-discipline and self-examination.

Staying in Channels

As a personal standard, the art of minding your own business, or staying in channels, can be vexatious and difficult. People, including executives, are naturally gregarious. One word can always lead to another. The ego meanders and the temptation is frequently present to tell the other fellow how to steer the ship. Yet, it is a prime responsibility for executives to stay in channel. This means he must do his own job and must not concern himself about what someone else is doing, unless it is one of his own subordinates. It means that an executive must be careful to whom he writes and what he says. When he gets out of channels in internal communications, he can really raise havoc. It seems to me, he should ask himself the question, over and over again, "Is this memorandum necessary?" and keep on asking that question, even when he has become heavy with brass and kudos.

To be condemned and avoided are the following: The blind copy of the artful memorandum, which can be a time bomb of great destructive power; company gossip, trading restricted information with an associate; cultivating a company grapevine; giving tongue to windy opinions on business matters outside the purview of an individual's responsibility.

When by honest conviction an executive feels he has information or an idea which must be communicated to someone in another department, he should not dictate a memorandum to the man in question. The way to do it is through his own superior. It is up to the latter to decide if the information should be communicated through the correct channel to the party of interest.

Kindliness

Executives usually have people under their control and direction. This is the role of power and prerogative so easily abused. This area is one of the least understood phases of corporate living, in which it is extremely difficult to establish a personal standard. There are all kinds of bosses. At the extreme, the epithets that attach to them run from the abhorred "stinker" to the well-loved "Santa Claus" type. Many who don't deserve it may be successful; others deserving of success may be failures. The inhuman martinet by sheer brutality can force his way up in corporate living and so can the executive who is perhaps better loved by his people for his human qualities than for his business acumen. In the main, however, acute and experienced higher management watches these relationships and considers the more valid qualities of leadership in making selections for greater responsibilities.

In handling subordinates, it is wise and necessary to be kind. Kindliness must be tempered by intelligence to avoid an emotional approach

Continued on page 124



NEW MATERIALS

that bounce

I. Silicone and fluorocarbon rubbers

ANNESTA R. GARDNER

Industrial Editor

First aid for ailing products and equipment is offered by new elastomers that keep their flexibility while others stiffen and crack. Though expensive (these fluorocarbon O-rings cost about \$4 each), they're often well worth the price.

ALMOST EVERY COMPANY has it—that one critical spot in products or equipment which no ordinary material can fill. Heat or chemicals, extreme cold or oils, coupled with a need for resiliency or elasticity, provide a set of specifications that reads like an engineer's nightmare.

In jobs like these, materials cost means little. It is the ability to live with such conditions that really counts. And that's where the silicone and fluorocarbon rubbers come in.

The silicone and fluorocarbon rubbers are out-of-the-ordinary materials, built for the out-of-the-ordinary conditions that occur somewhere in almost every industrial operation. They certainly aren't cheap. The price of silicone rubber is \$2 to \$5 a pound, and the fluorocarbons are starting at \$25 a pound.

But when the heat's on, or chemicals attack, these new rubber-like materials keep their bounce while other rubbers stiffen and crack or become limp and tacky.

In searchlights and steam irons, silicone rubber seals and gaskets take temperatures as high as 500° or 600° Fahrenheit without losing their snap.

Fluorocarbon rubbers shrug off attack by strong mineral acids, peroxides, hydraulic fluids, and sour crude oils.

Though they are not chemically related to rubber, these materials really are rubber-like. They are processed on standard rubber machinery, and can be molded, extruded, and calendered on cloth. They are vulcanized like rubber (though peroxides or other chemicals usually replace sulfur); and, like rubber, they can be strengthened by the addition of powdery fillers. Carbon black is frequently used as a filler for the fluorocarbons, and the silicones may be filled with metallic oxides.

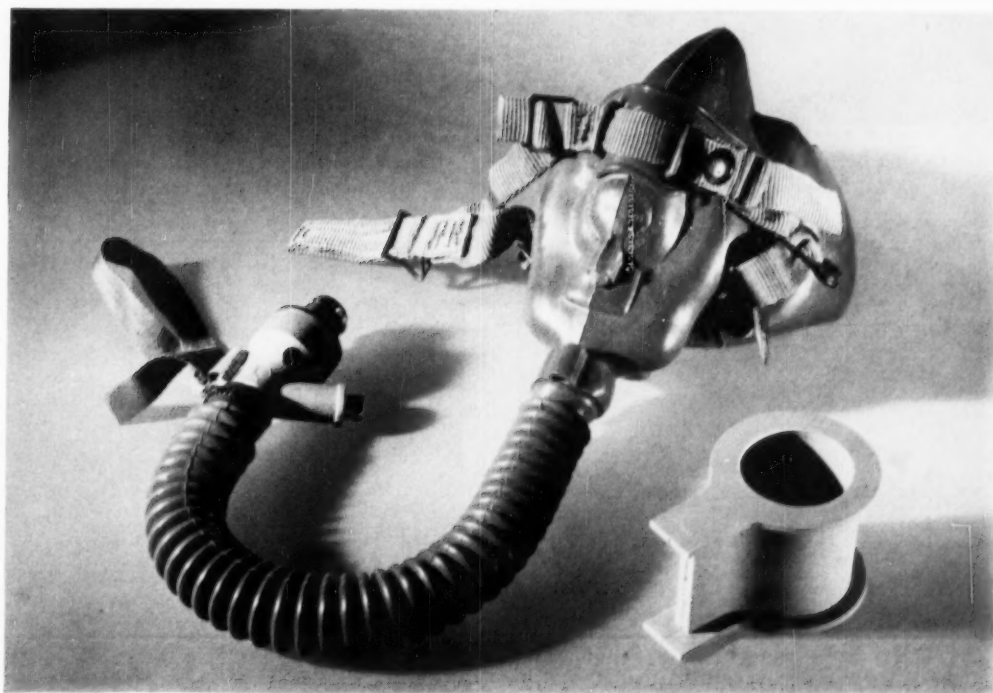
Chemically, the fluorocarbon rubbers resemble ordinary plastics in that they are long-chain polymers in which carbon atoms form the major links. But, attached to that backbone, they have a high percentage of fluorine atoms, and, sometimes, chlorine atoms as well. The weight percentage of fluorine usually exceeds 50 per cent.

The silicones, on the other hand, differ a good deal from plastics and rubber in their chemical structure.

In the silicones, silicon and oxygen atoms form the major links in the chain. Carbon atoms are present only in side groups. The silicones actually represent an entirely new family of materials, offering many unusual characteristics.

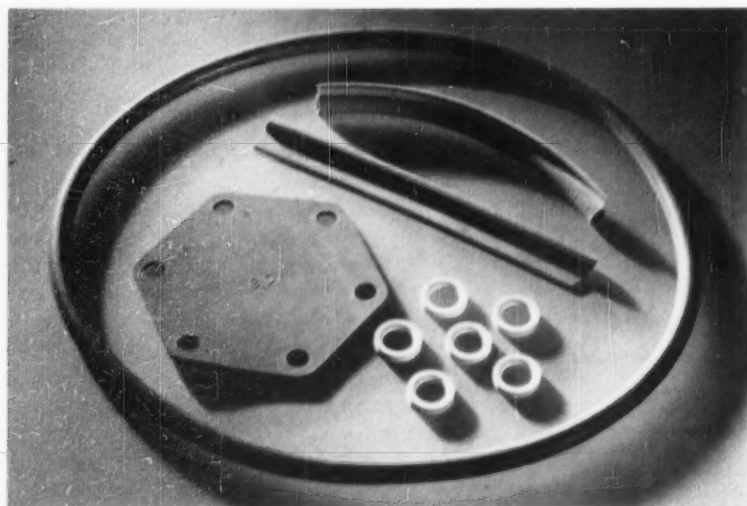
For example, as R. G. Fisher of the Okonite Company points out, because the silicone rubbers do not have a carbon "backbone," they do not form a conducting ash when subjected to a flame. This has many advantages, not the least of which is the fact that metallic-sheathed, sili-

Continued on page 45

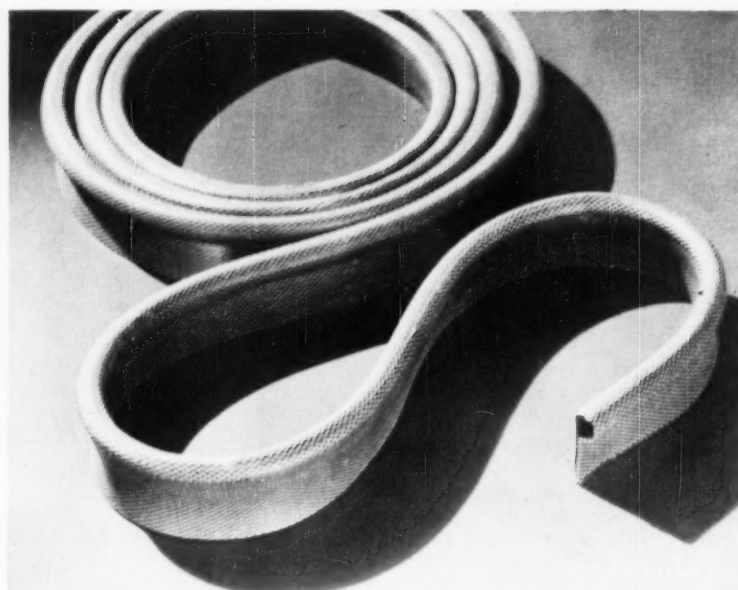


Lifesavers in more ways than one are these silicone rubber products. Because it retains strength and elasticity over a wide temperature range, silicone rubber is a natural choice for pilot's oxygen mask (left), heart-lung pump valve (right). Acushnet Process Company molded these and O-rings.

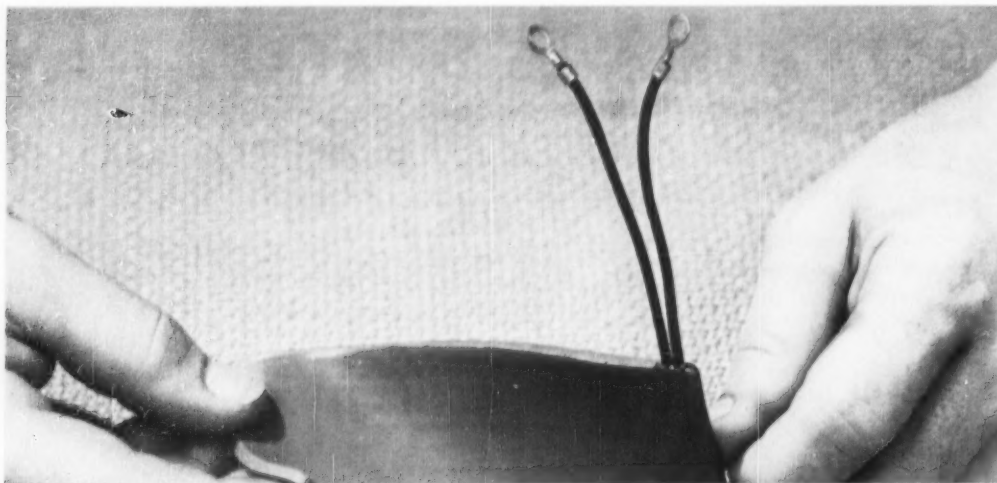
SILICONE RUBBER



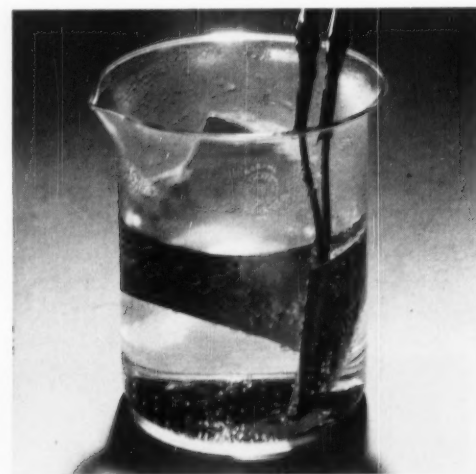
Heat resistance brings silicone rubber jobs in consumer and industrial products. Pictured here are gaskets and diaphragms molded by Garlock for products ranging from lamps and kitchen ranges to Diesel and aircraft engines.



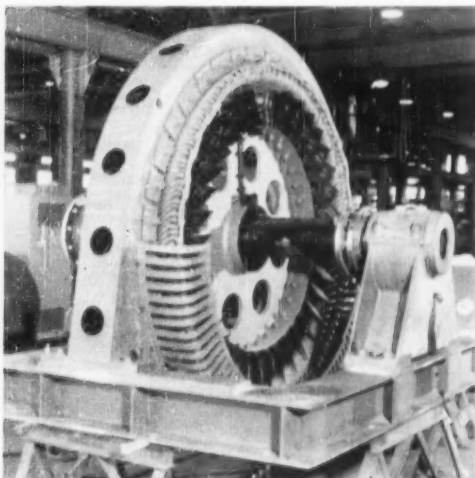
Strength can be built into silicone parts by fiber and fabric reinforcement, as in this aircraft sealing strip, made by Connecticut Hard Rubber Company. Similar material might be used for piping, hot air baffles, conveyor belts.



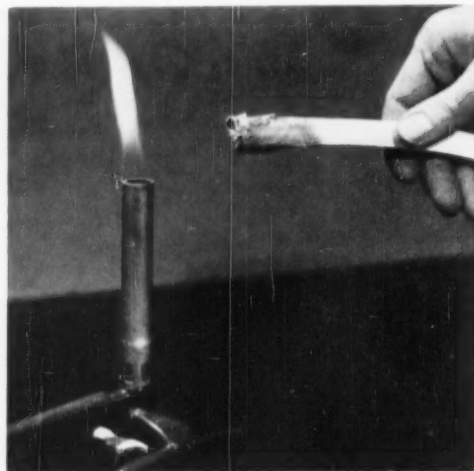
Long-term protection against heat and moisture is provided by *Silastic* insulation which covers flexible woven wire heating element made by Hadam Manufacturing Company. It's for aircraft use.



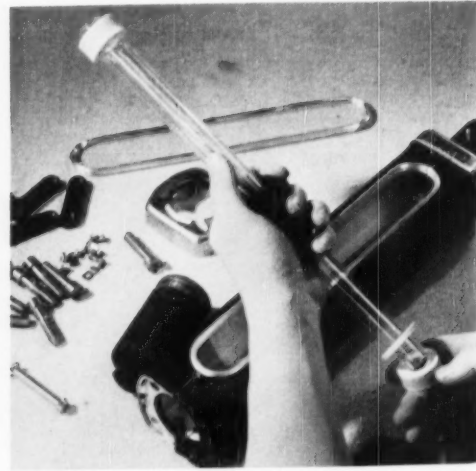
Encapsulated heater gets hot enough to boil water, yet continues to operate satisfactorily.



Desirable electrical properties, plus unusual heat resistance and thermal conductivity, made silicone rubber Allis-Chalmers' choice for insulating big motors and generators like this.



Performance under fire is another plus for silicone rubber. It will burn, but leaves no organic ash, can be made self-extinguishing, as Dow-Corning Corp. demonstrates with this test.



Chemical resistance of silicone rubber increases service life of flowmeters. This one, with top and bottom seals made of Dow Corning Corporation's *Silastic*, is for use in chemical plants.

cone-insulated cable will maintain its integrity even during a fire.

Furthermore, while both the silicones and fluorocarbons will burn, there are types that will not support combustion.

What the Silicones Offer

Silicone rubber is remarkable for the range of temperatures over which it can be used. It remains reasonably strong and flexible at temperatures as low as minus 100° Fahrenheit, and as high as 500° Fahrenheit, and there are formulations that can go down to minus 140° or up to nearly 600°. It also resists weathering and age-hardening.

Another key feature of silicone rubber is the fact that there are types which have an unusually low compression set. This is an important point. Compression set is a measure of a material's ability to return to its original form after it has been under pressure. The higher the compression set, the shorter its useful term of service may be under load.

The electrical properties of silicone rubber are also good (see photograph, page 44). There is little change in dielectric constant and power factor over the temperature range of minus 40° to plus 480° Fahrenheit. Thermal conductivity is relatively high too—an important factor in many electrical applications.

Silicone rubber resists weathering, ozone, and electrical corona discharges. Its chemical resistance is good in most respects, but it is attacked by concentrated nitric and sulfuric acids, and by some solvents and hot oils.

Fluorocarbons Do This

The fluorocarbon rubbers are much newer than the silicones—so new that many of their properties are still being evaluated, and most of their applications are still labeled "experimental." There is little doubt, though, that these materials are outstanding in their resistance to hot oils, as well as to acids and alkalis.

A study, by Battelle Memorial Institute, of elastomers suitable for use with diester-type lubricating oils at temperatures of 350° to 400° Fahrenheit showed, for instance, that at least one of the fluorocarbon rubbers seemed to meet most of the minimum requirements, while other elastomers, including the silicones, fell by the wayside.

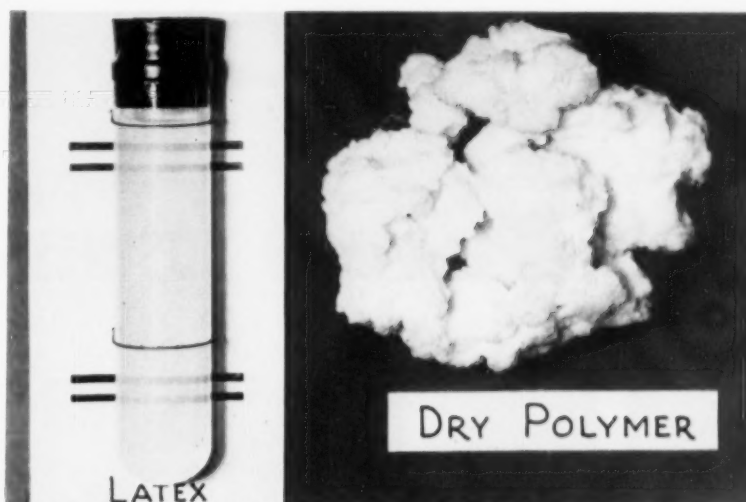
The fluorocarbons seem stronger, more abrasion-resistant, and more resistant to tearing than the silicones. But the fluorine polymers do not seem to have the low temperature resistance of the silicone materials, and they do have a rather high compression set.

Even the most ardent proponents of the silicone and fluorocarbon rubbers recognize their limitations—and they have quite a few.

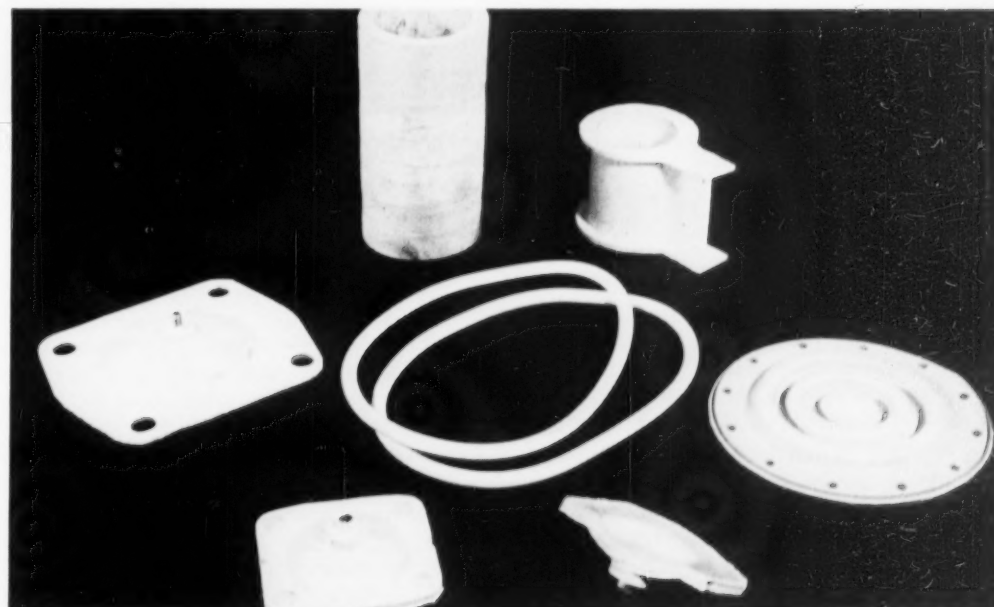
Though they can be processed on standard equipment, they are by no means easy to handle. Companies like Acushnet Process, Connecticut Hard Rubber, Garlock Packing, Lord Manufac-

Continued on page 52

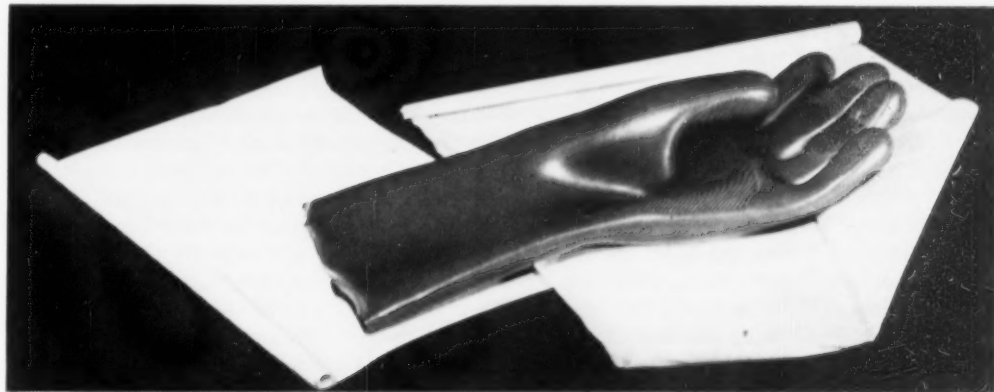
FLUOROCARBON RUBBER



Like rubber, new elastomers are obtainable in liquid latex or solid crude form. This is Minnesota Mining's 3M brand F_4 fluorocarbon rubber. It is also available in compounded form, with several reinforcing materials and fillers.



Typical of the parts which can be made of fluorocarbon rubber are these Kel-F moldings. Note similarity of valve (upper right) to silicone valve on page 43. Other parts are diaphragms, gaskets.



Calendered on cloth, fluorocarbon rubber may be used for gaskets, diaphragms and seals like those pictured above, and also for protective clothing. It should be particularly useful where concentrated acids and alkalis are handled. The chemical resistance of fluorocarbon rubber is excellent, and it also stands up well under heat and abrasion. Samples here are of M. W. Kellogg's Kel-F.

EDUCATION:



BUSINESS MEN'S BUSINESS



DEVANEY PHOTOGRAPHS

To the three "R's" add responsibility The responsibility of business to help in providing a technically trained work force for the changing technology of US industry.

NEIL McELROY

President, Proctor & Gamble Company

THE CHAIRMAN OF THE RECENT WHITE HOUSE CONFERENCE ON EDUCATION REPORTS TO BUSINESS ON THE ACCOMPLISHMENTS SO FAR IN MEETING THE CRISIS IN THE SCHOOLS. HERE IS WHAT SOME COMPANIES ARE DOING NOW TO HELP THEMSELVES BY HELPING THE SCHOOLS, AND WHAT STILL REMAINS TO BE DONE.

TO A GREATER degree than ever before, business men to-day are turning their attention to the problems of education and seeking ways to help find much-needed solutions.

Company after company is recognizing the pressing financial needs of our institutions of higher learning and working out plans to provide scholarships, fellowships, grants, or contributions in other forms. Since colleges form an important source of executive material, and since the recruiting of young graduates brings the business man into frequent contact with colleges and universities, it is not surprising that business is increasingly recognizing the fact that these institutions need help, and finding ways of coming to their assistance financially. This interest and support is needed and commendable.

When we turn to our elementary and secondary schools, however, the business man is not so

apt to be aware of the problems and needs. Our schools seem to keep running; children go to them and are not turned away; education is always there available to all. Until recently, few business men have realized how much their interest and attention are needed if we are to have in this country the kind of schools we want to have and must have for our children.

It is easy to recognize the need for the educated men turned out by our colleges and the trained scientists graduated from our technical schools and to forget that higher education must rest on a solid basis of elementary and secondary education. The shortage of chemists, physicists, and engineers cannot be solved by our technical schools alone; it is in the secondary schools that the young mind must be stimulated and guided, and the rudimentary courses in mathematics and science taught.

But the business man's stake in education goes much deeper and further. If we are going to ask the individual citizen up and down the street to make decisions on national policy or to select wisely leaders who will do so, we must provide all the people—not just some of them—with the means of acquiring knowledge and of understanding it. Our citizens must be able to understand the words they see and hear, and thus select the sound from the unsound. They must, in other words, be educated.

The case can be stated in terms of economics as well. It has been demonstrated that a worker's earning power matches his education almost directly. Census Bureau figures show that men with high school or college educations earn 80 per cent of the incomes over \$7,000—and men with only an eighth-grade education or less earn 77 per cent of the incomes under \$5,000. Men capable of filling the higher paid jobs, skilled labor to operate our highly industrialized economy—these men must come from the ranks of those who have had the basic education provided by good schools.

Despite the fact that the need for an educated citizenry has been an important part of our



HARRIS & EWING PHOTOGRAPH

"If business and industry get behind the program of citizen conferences for education and the plans for school improvement, America's education crisis will be met and President Eisenhower's hopes for the White House Conference on Education will be justified."—McElroy

country's thinking from the very start, we as a people have allowed our schools to become inadequate. A decade of depression followed by years of war saw the physical plant deteriorate without adequate replacements. Hundreds of thousands of teachers, siphoned off for service during the war, did not return to the classroom. After the war high wages in business and industry attracted thousands of young people who in ordinary times would have entered teaching. Rising costs in the post-war years put the squeeze on school districts where revenues seldom come close to keeping pace. And while the post-war baby crop added immeasurably to the strength and prosperity of our country, it flooded our ill-prepared classrooms.

The picture was not, of course, one of unrelieved gloom. The educational profession itself strove mightily to meet the challenge. Many civic and educational organizations like the PTA rose to the occasion with vigor. And the National Citizens' Commission for the Public Schools was chartered in 1949 for the express purpose of arousing the American public to support its schools.

In spite of the magnificent efforts of many individuals and organizations, however, not much of a dent had been made by 1953 on the enormous job to be done. The nation was faced with an educational crisis of truly epic proportions.

To help meet this crisis in the schools President Eisenhower launched the idea of a White House Conference on Education. In his State of the Union Message to Congress in January 1954,

he issued the appeal for a national stock-taking of our schools:

I hope . . . a conference on education will be held in each state, culminating in a national conference. From these conferences on education, every level of government—from the Federal Government to each local school board—should gain the information with which to attack these serious problems.

Nearly two years later, from November 28 to December 1, 1955 the national conference envisioned by the President was held. Every State and territory had already held its own conference and had reported its conclusions to the White House Conference Committee. In addition, thousands of local communities, county school districts, and even attendance areas within school districts had held their own "little White House Conferences" to analyze their local school problems.

These community and State conferences followed diverse patterns. Many of them were organized in small round table discussion groups like the White House Conference itself; others followed the pattern of the town meeting. Nearly all of them sought a democratic exchange of views on the part of the participants.

The White House Conference in Washington brought together nearly 2,000 delegates from every State and territory to sit down at round tables of eleven citizens each to seek solutions to the problems of the nation's schools. After electing its own chairman, each table spent one half-day session on each of the six major prob-

lem areas: the goals of education, the organization of the schools, school building needs, the teacher shortage, financing the schools, and obtaining a continuing public interest in education.

Discussion at the conference was limited to the problems of education at the elementary and secondary level. The decision of the White House Conference Committee on this matter was taken not because higher education does not face major problems but because time was a limiting factor and because the problems of the public schools are so immediate and pressing. The population wave that will hit the colleges in ten or twelve years is inundating our elementary schools right now. One conference could not consider all the major issues even of elementary and secondary education which affect most Americans directly. We may hope that other, similar conferences will take up the problems of higher education in the near future.

The report of the White House Conference Committee is not yet written and the results of the Conference itself won't be clear for many months, but some conclusions are justified.

Whose Responsibility?

At the simplest level, the Conference provided a means for publicizing the schools—for making their problems more widely known than ever before. More importantly, perhaps, it dramatized effectively once more the responsibility of every local citizen for his own community's schools and their affairs.

Another striking result was the proof it afforded that a cross-section of America could sit down at the conference table and hammer out agreements in the heat of debate. Citizens from every part of the country, representing every educational philosophy and every political stripe, with backgrounds and personalities as diverse as the nation itself, met, argued, and compromised their differences—not their principles—in true democratic fashion.

Finally, it introduced many hundreds of people to an effective means for tackling school problems—the round-table discussion meeting. This is not a new technique—the National Citizens' Commission for the Public Schools, for instance, has used it for years in local, State, and regional workshops and many educational organizations have used variations of it—but it was new to many people. As *Educational Trend* reported: "Many observers believe that the process of the Conference, that is, the way it operated, was as great a contribution to education as the Conference findings. For, it demonstrated that it is possible to gather together a large group of laymen and educators, and to channel their diversified approaches to the problems of education into some common agreements." And *Education Summary* predicted that ". . . education's conferences—small and large—will henceforth reflect the highly successful procedures used in this Washington conference."

Not everyone, of course, was equally happy

Continued on page 150

CURING THE ABSENCE HABIT



ALFRED G. LARKE
Employer Relations Editor

EMployee absences may require the typical employer to keep four or five "extra" people on his payroll for every 100 who are working, simply to replace those who will be away from work on any given day.

This tax on the payroll—it may be as low as 3 per cent, as high as 8 per cent or more, in a given company—is not all avoidable, of course. But the figure is high enough in any case to have stimulated a good deal of current research into means of legitimately reducing it.

Considerable insight into the problem and how to meet it has been given in recent reports on an absence-reduction program at the Detroit Edison Company, based in part on a morale survey by the University of Michigan Survey Research Center; and in a long-term study of who has been absent and why among employees of the New York Telephone Company.

Two months ago 500 physicians and personnel people exchanged suggestions at a session of the American Medical Association's 16th Annual Congress on Industrial Health. The Congress saw the introduction of a comprehensive Syllabus on Work Absence, prepared by the U.S. Department of Public Health under AMA committee sponsorship.

The Syllabus, an excellent guide to the whole area of employee absence, medical and non-medical, was received with acclaim and led to a proposal that the AMA, through its Committee on Medical Care for Industrial Workers, a joint committee of its Councils on Industrial Health and on Medical Service, evolve uniform definitions and formulas for computing job absence, and plan regular gathering of absence statistics and issuance of periodic reports for industry's guidance.

A year earlier, a two-day conference on absenteeism was conducted by the Research Council for Economic Security, in which participants presented other case studies and wrestled with ways and means of improving the situation.

The tone of the current discussions and research is considerably different from that of previous concerted efforts to keep more people on the job more of the time.

Absenteeism in the atmosphere of World War II became almost a dirty word. Unions, fearing absenteeism was being used as a whip against them, nevertheless felt compelled to join in formal drives to combat the trend.

There was little sound, provable knowledge of what caused workers to absent themselves from their jobs—you can still get up a good argument about it—but management, unions, civic, and other groups joined in well-publicized attacks on what appeared to be major causes.

Seven-day weeks were virtually eliminated, because people wouldn't work without days off, no matter what. If they weren't given them, they took them. When possible, six-day weeks were held down, and the extra work was achieved through overtime work in five-day weeks.

Shops stayed open nights, services were made available at the plants, child-care centers were established. The necessity of steady work for patriotic reasons was propagandized by the most vigorous means.

How effective the measures were can only be guessed at, because there were no standards to measure against. With the end of the war, the absence rate slumped back to normal—probably about half the wartime rate, according to the most authoritative estimates. Now "absenteeism"

is "absentism" or simple "work absence" in the lexicon of the specialists.

Some idea of the current cost of absences may be obtained by comparing it with the cost of the SUB (Supplemental Unemployment Benefit) plans negotiated with labor unions last year.

The costliest of last year's SUB plans set management back 5 cents per hour per worker, and that only until a reserve had been accumulated.

Yet employee absences are costing management perhaps 50 to 100 per cent more than SUB, if the experience of one large, conservative company is an adequate criterion.

Figures presented by Dr. Norman Plummer, Medical Director of the New York Telephone Company, and an associate, Dr. Lawrence E. Hinkle, Jr., indicate that *sickness* absence alone costs that company about 7 cents an employee-work-hour, without counting unmeasurable costs like loss of efficiency due to replacements.

The telephone company experience may be atypical because of the large proportion of women it employs, but it offers as solid a set of data as is likely to be found, because the records of absences and causes run back 35 years or more.

The figures are impressive. Of the New York Telephone Company's 75,000 employees, an average of 3,000 are absent every day—2,300 out of 50,000 women, 700 out of 25,000 men.

The absentees receive about \$9,000,000 a year in sickness and accident benefits. Workmen's compensation, above payment for time lost, runs to \$150,000 a year. Premiums for state disability insurance for employees not covered by the company's plan cost about \$100,000. It costs about \$700,000 to run the medical department, and about \$500,000 for the benefit department and personnel expenses in managing the absentees.

That runs to more than \$10,000,000 a year for the company, or about 7 cents per hour for the 72,000 employees who are working. In addition, the employees themselves pay perhaps \$1,000,000 a year in doctor and hospital bills, over and above the \$2,000,000 paid out in medical and hospital insurance. And they lose an estimated \$2,000,000 in wages—mostly for newer employees not fully covered by sickness benefits.

Cost figures like these, plus the inestimable intangibles, may explain why research into the causes and cures for absenteeism has been quietly burgeoning, and personnel and medical men are busily swapping experiences on control.

Chief interest in the New York Telephone Company—for those who have to deal with absences in other concerns—probably lies in the documentation the two medical men give to the conviction that a small percentage of employees is responsible for a large percentage of absences and of time lost.

Many Are Repeaters

In a given year, about one-third of those in the company's employ account for three-quarters of the number of absences and for four-fifths of the days of disability. Thus, of the average of 3,000 who are absent for illness each day, most are "repeaters" from among the 25,000 employees with the poorest attendance records. The other 50,000 employees account for only a small part of the absence record.

The doctors also concluded from their study that the chief factor in determining whether an employee would fall among the "well" two-thirds or among the "ill" one-third was the amount of "psycho-social" strain and stress, or tension, the individual suffered in his life as a whole, and especially in off-the-job relationships.

This conclusion seems at first glance to war with the main findings of the Survey Research Center at the University of Michigan in the study it made at the Detroit Edison Company, to see if there were any correlation between employee morale and absence or attendance records.

The Detroit Edison survey (see "What Makes People Absent?" MODERN INDUSTRY, June, 1953) showed that employees who were absent least often were those who said most frequently that they felt free to discuss job problems with their supervisors; that their supervisors had time to talk over personal problems with them; and that their supervisors held meetings with their whole group on common problems.

Similarly, employees whose total time lost was lowest had the highest group spirit or *esprit de corps*, felt their group was better than others, and were sure their group excelled in getting a job done.

These findings would indicate that relations on the job—morale as measured by confidence in foremen and fellow-workers—determines whether an employee will have a good or bad attendance record, rather than his adjustment to life off the job.

Detroit Edison based an organized attack on the absence problem upon these findings (it is described on page 50).

The seeming discrepancy between Detroit Edison and New York Telephone Company findings may be more apparent than real. Two-thirds of the telephone company employees are women, a lesser proportion of the utility company's. Also, the University of Michigan survey showed no significant correlation between job-satisfaction and absence among the women employees it checked on. As a result, the survey reports only on men employees, white collar and "blue collar." The telephone company doctors did do a detailed study on the 20 men and 20 women with the best attendance records, and the 20 men and 20 women with the poorest records, and found they agreed in substance, although not in degree. But the sample was small enough that its results might be accounted for as reflecting a number of exceptional cases.

At the AMA Industrial Health Congress, the medical men concentrated on *preventive* or what some of them prefer to call *constructive* health care—the prevention of disease and illness, or the positive creation of good health (and the consequent reduction of illness and absence).

Able and Willing

The Syllabus, in its first sentence says:

"A worker on the job must be both willing and able to be there; if one of these conditions is not satisfied, he will be absent."

The doctor's normal interest is in the worker's *ability* to "be there." His *willingness* to "be there" is closer to the areas surveyed by the University of Michigan Survey Research Center and the New York Telephone Company.

Standing out in the conference discussions of the absence problem have been these points:

1. There is a need for adequate and uniform records. Because companies have different goals in record-keeping, they have different methods and definitions. Inter-company comparisons are difficult; there is no central body serving as the National Safety Council does for accident and injury figures.

2. Top management is frequently not interested. Best way to involve it is to present absences in terms of cost, of extra manpower, of disability-payments, or the like, it was suggested.

3. First-line supervision must be made interested in the problem; the proper stimulus is from the top. A line-superior's concern will affect employees more than a house-organ or bulletin-board campaign.

4. The company must have a policy that supervisors can use as a guide.

5. Supervisors need training in dealing with chronic absentees.

6. Absenteeism cannot be effectively dealt with on a simple basis of pre-employment tests that might weed out in advance the kind of people who would be prone to chronic absenteeism. For one thing, it is not certain such tests could be developed. Some chronic absentees de-

velop their patterns some time after hiring. For another, as one doctor pointed out, it would probably be socially impossible to freeze out one-third of the population, even if a company considered it desirable.

The Detroit Edison Company program aims at all of these points with the partial exception of the first; uniformity of industry's record-keeping cannot be established by a single company. It did make its own records uniform within the company.

The utility company had a head start in the fact that supervisors some time ago, during meetings on employee relations problems, asked for information and advice on absences.

A booklet was prepared spelling out the policy in detail. The company policy is unusually generous: As many as 20 days a year may be taken off, with pay, for personal illness, death or illness in the family, and necessary personal business, and days not used in a year may be accumulated in a "sick bank" up to a maximum of 60 days.

Like Insurance

The booklet emphasized the insurance-like principle in the plan. It could not be afforded if everyone took off 20 days each year; no one expects to collect insurance unless the contingency he insured against in fact occurs. This has been a difficult matter because employees have to be treated on an individual basis, and much responsibility falls on supervisors.

Some employees felt the 20 days was "owed" to them and acted accordingly. Employees have even suggested that "unused days" be given them as a vacation bonus, as reward for not being absent. This was one point the supervisors had to work on hard, with a warning that abuse of the policy would result in lessening the allowance.

The supervisors' booklet also contained general information on absenteeism in the country as a whole and in the company. How rates are determined, what they are nationwide and at Detroit Edison, and the tangible costs and estimates of intangible costs were given.

Another section listed causes of absence in the company and in other companies—the causes given by employees and "real" causes. It was stressed that the causes may lie in the employee, in the company, or in the community.

Findings of the Survey Research Center, linking low absence rates with some kinds of job satisfaction, were given in detail. (It is worth noting that not all expressions of job satisfaction correlated with low absence rates; men on undesirable third shifts had better rates than those on day jobs. The difference was attributed to the feeling of job responsibility and being more on their own, natural to smaller late shifts.)

Finally, suggestions were given for reducing absences through both individual and group approaches. Supervisors were armed with explanations why the chronic absentee is a problem.

A five-step plan for dealing with the chronic offenders was proposed: identify him, search for

causes, try to help him correct his trouble, use discipline if this doesn't work, and if discipline fails, recommend dismissal. Detailed suggestions were given for interviewing.

As for others, supervisors were told exactly what kind of information must be given—the standard practises on notice of absence and of return, interpretation of "necessary personal affairs," disciplinary measures, agreements with unions, and the like. Occasions when such information can best be passed on were also listed.

Another portion dealt with improving work relations, aimed at creating the kind of job satisfaction the morale survey had shown marches hand in hand with a good attendance record.

The booklet was pretested and revised several times before being printed and put in a supervisor's kit, along with the Survey Research Center's research report and a copy of the MODERN INDUSTRY article, "What Makes People Absent?"

The kits did not go directly to first-line supervisors. They were first presented through "a chain of interlocking conferences starting at the top of the organization and then proceeding step-by-step down through the various levels." At each level, the line superior discussed the problem with his immediate subordinates.

This method of feeding back information from the survey (described more fully in "How Democratic Can Industry Be?" MODERN INDUSTRY, September 1950) meets two needs at once. It involves top management and, because it proceeds down the line instead of through the staff, it is more persuasive to the supervisor.

Results at Detroit Edison: In 1954, the last full year for which figures are available, the total number of days-absent dropped 4.5 per cent from 1953. Frequency rates dropped 11.4 per cent. Both rates dropped for men, but only the frequency rate for women. There were discrepancies between departments, but the big majority followed the company-wide trend.

The last quarter of 1954 showed increases, which are attributed to the pickup in business conditions in Michigan at that time, and a consequent tightening of the labor market. To check on whether business conditions might have accounted for the previous decline, too, rates were

compared with those of a similar organization in the area. The other company, it was found, had had increases in both kinds of absence rates among male employees while Detroit Edison's were dropping. Women's short-term absences

Survey, training, better records help Detroit Edison supervisors cut absences



Research links morale with attendance



Line superior discusses facts, methods



Front-line man seeks causes in records



He spreads information, checks errors

increased in the other company at this time, also, but their days-absent rate was decreasing as at Detroit Edison.

As to how far motivational forces went in bringing about the reductions, Floyd C. Mann of the Survey Research Center and John E. Sparling, director of Employee Communications and Research for the company, who have presented the first formal report on the program, see some effects as due to this part of the plan.

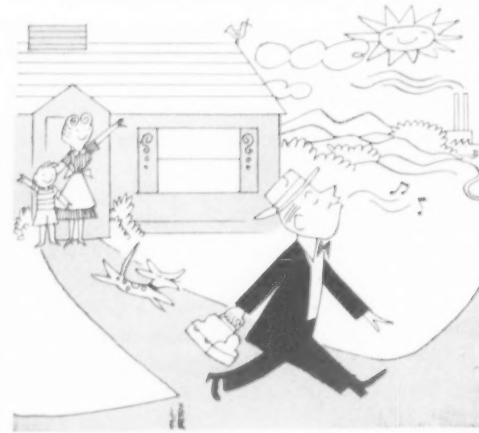
Supervisory discussions by organizational teams, along with inauguration of new, uniform record-keeping methods, created team goals and resulted in group commitments. Use of two kinds of absence rates increased the possibility of a supervisor pulling his group ahead in at least one respect if he could not improve in both.

Emphasis on the social causes of absenteeism relieved a situation in which most foremen had always felt individuals were solely responsible.

Comparison of records in five power plants also gave a chance to evaluate different administrative attitudes towards absenteeism. In one plant, which had had nearly top rates but showed the greatest improvement in 1954, strong discipline had been the practise. Top management—four levels up—talked to every individual who was in the top 10 per cent of absentees. Chronic absentees were threatened with being required to present medical proof in all future absences. In 1954, the task was turned over to second-line supervision, but without giving them much training. Rates dropped rapidly, but a survey showed only 36 per cent of employees felt the absence policy was being handled quite or very fairly.

In another plant, which already had the best record, putting chronics on a certification list was discussed but never implemented with hard and fast rules. First-line supervisors carried out the program, and a spirit of competition was vigorously pushed by plant-wide communications means. In this plant, 79 per cent of employees considered administration of absence policy to be quite or very fair.

Both methods—high-level and rigid, and low-level and permissive—appear to get results, but the latter gets better results and better morale.



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NEW MATERIALS THAT BOUNCE... continued

turing, and Parker Appliance, which have had plenty of experience and little or no difficulty in molding neoprene and natural rubber, report that the silicones and fluorocarbons can be tricky and temperamental customers.

E. L. Carlotta of the Parker Appliance Company Rubber Research and Development Laboratory emphasizes that the working area must be kept unusually clean and free of dust and contamination when these elastomers are being molded.

Engineers at Acushnet Process Company note that special molds are often needed for these elastomers, since they may shrink a good deal during curing. This may also make it difficult to hold close tolerances.

In product design, too, the new elastomers need special handling. As G. W. Painter of Lord Manufacturing Company told an ASME meeting: "Silicone rubber can not, in general, be substituted directly for such elastomers as natural rubber and neoprene in established designs. . . . It has unusual load-deflection characteristics, and its tensile strength is lower."

He was speaking particularly of vibration isolators, but the same

holds true for many other types of products, and for the fluorocarbons as well as the silicones. (It holds true for many other types of materials, too. It is always best to redesign for the particular material being used to take full advantage of its good characteristics and minimize the effects of its bad ones.)

At present, there are three commercial producers of silicone rubber: Dow Corning, General Electric, and Union Carbide. Two companies offer fluorocarbon rubber: M. W. Kellogg and Minnesota Mining and Manufacturing, but this number may be increased to three in the near future, perhaps even four.

The number and importance of the producers is not, however, an indication of the expected tonnage of these elastomers. They are, and are likely to remain for some time at least, special-purpose materials. Indeed, with the introduction of such promising (and less costly) elastomers as polyethylene rubber (chlorosulfonated polyethylene) and the polyurethane rubbers, the silicone and fluorocarbon elastomers might lose some of their jobs in the moderate-temperature range.

Still, as W. J. Simpson of Chrysler Corporation's Rubber and Plas-



Plenty of problems remain to be solved before new elastomers can be processed as readily as standard materials. Curing time, for example, may be quite long. Fluorocarbon sheet stock gets 30-minute cure in press like this, then moves to oven for further treatment. M. W. Kellogg photograph.

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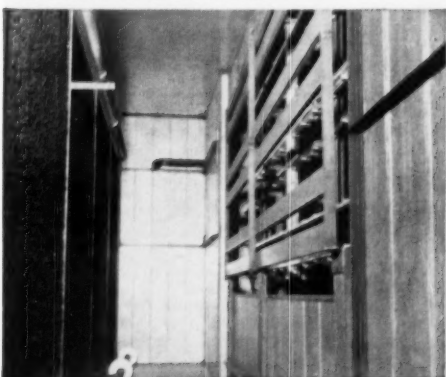
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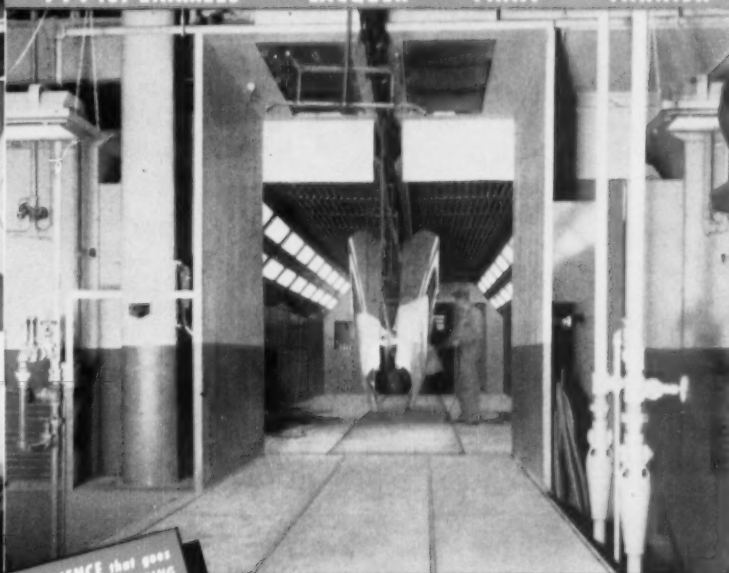
Mahon ventilated Flash-Off Enclosure between Hydro-Filter Spray Booth and the Finish Baking Oven on the roof above.



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Interior of Mahon Air Supply System showing one bank of Filters of the Air Filtering Equipment and the Direct Gas-Fired Air Preheating Unit.



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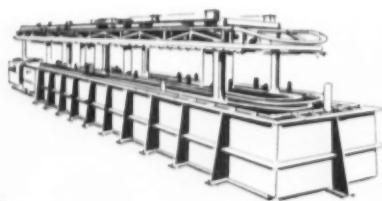
Rigid manufacturing uniformity and the elimination of possible human error are recognized basic needs. This is as true in the required electro-plating as in any of the other manufacturing steps.

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NEW MATERIALS THAT BOUNCE...continued

tics Laboratory points out, each of these materials has its deficiencies, too. For instance, he says, under steady load (such as in mountings) solid polyurethane rubber may exhibit considerable cold flow and deformation. Its strength and oil resistance drop off above 200° Fahrenheit... and its resistance to steam and hot water is not good.

(A review of *New and Improved Elastomeric Materials for Automotive Use*, prepared by Simpson for last year's Golden Anniversary Meeting of the Society of Automotive Engineers, is still one of the best surveys of the field, and is well worth reading.)

Improvements can, of course, be expected in the polyethylenes and polyesters. But the silicones and fluorocarbons are also being improved.

Only recently, for instance, a silicone gum suitable for blending with other elastomers was announced—opening up a new range of possibilities for improving chemical and physical properties, and, at the same time, cutting costs.

Fiber reinforcement also provides a means for increasing strength and tear resistance of silicone rubbers.

Where resiliency rather than elongation is of primary interest, the rubber can be reinforced with glass, polyester or fluorine plastic fibers to obtain gasketing and diaphragm materials that are stronger and more tear-resistant. U. S. Rubber and Dow Corning have even made experimental silicone rubber tires using glass fiber reinforcement and silicone adhesives. They might well prove valuable for special industrial applications.

Fluorocarbons, too, can be reinforced with a variety of fillers and calendered cloth, as the photographs on page 45 show.

Taking the long view, then, silicone and fluorocarbon rubbers can be expected to be improved in many respects, and to find a wide variety of industrial jobs. But, for the foreseeable future, they're likely to remain, as they are to-day, special-purpose materials for specially tough jobs.

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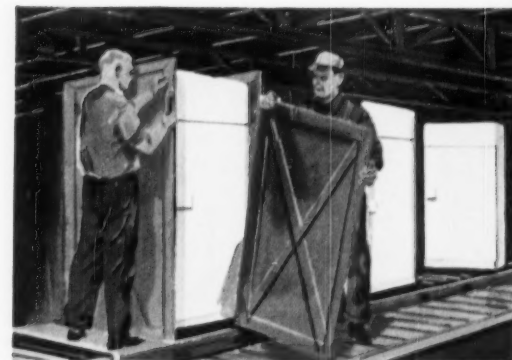
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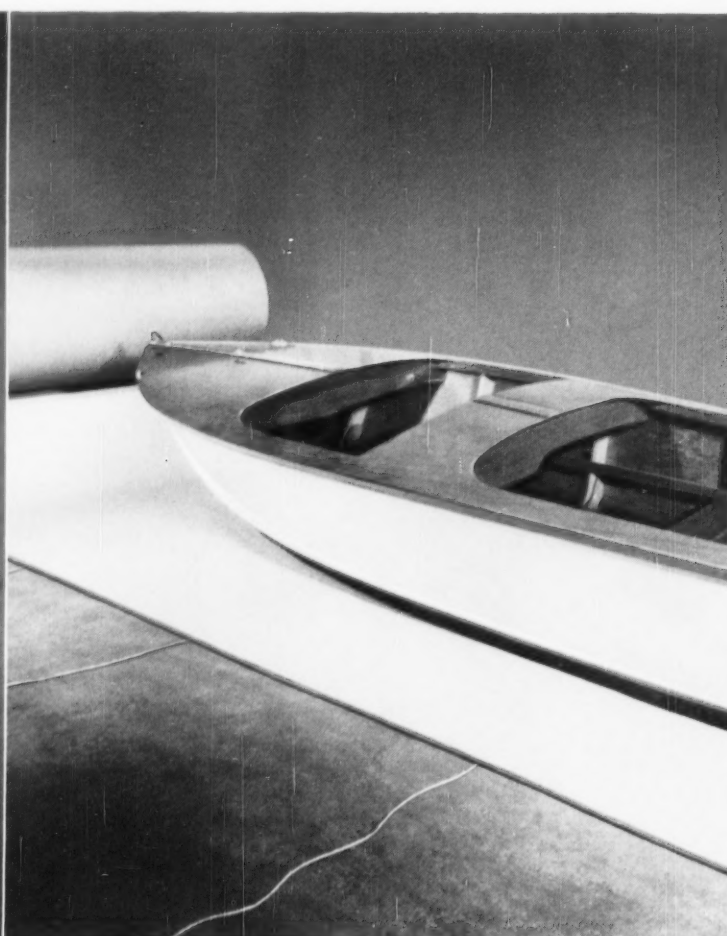
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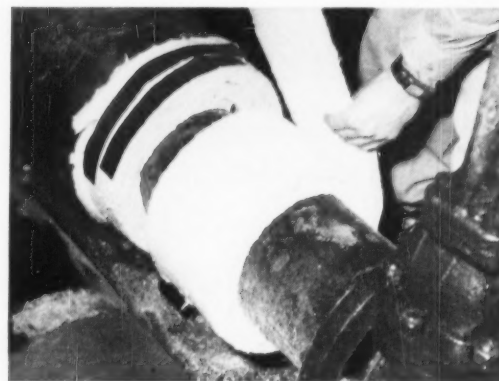
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Here's an example-packed roundup of the basic problems, important benefits, common errors, and correct approaches.
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Moving's a time to turn old risks into new opportunities. Here's how to improve community and employee relations.
- 3** WINNING THE NEW PLANT COMMUNITY page 83
A new payroll, a new taxpayer, mean a lot. They can help you win good relations if you play your cards right.
- 4** HOW TO PLAN A HUMDINGER OF A FIASCO page 92
Actually, it's not hard. You just base all of your planning on cold, analytic statistics, and ignore human beings.
- 5** WHAT QUESTIONS TO ASK AT LAST HURDLE page 98
Choosing wisely among numerous communities takes varied criteria. This checklist will help screen the finalists.
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YOU'VE GOT TO GROW— *but* WHERE? **LOCATION ANALYSIS CULLS RIGHT SITES**

WHEN THE SUN came up outside a small farming town the man waiting in the station wagon stepped out and began taking color photographs. Most of the shots were of the sky and he seemed to concentrate on cloud formations. Later, after emptying a Thermos of coffee, he sloped off across the fields photographing trees, bushes, boundary brush and the vegetation down along the river. His photographs would eventually be filed away by one of the nation's largest corporations which within a month would begin excavation for a new plant site. Reason: insurance. It would become part of the record proving that industrial smoke had not altered the landscape. Cost: cheaper than litigation.

Extreme caution comes naturally to companies that have been expanding rapidly over the past two decades. It comes because they have made serious and sometimes disastrous mistakes. They have learned that locating a plant is not always what it seems. One company, for instance, decided to locate in an East Coast resort area. A key factor in their decision was a substantial labor surplus during the Winter. They figured, logically enough, that the community would welcome them handsomely. And it did. Over 4,000 workers applied for 300 jobs, were care-

fully screened through a pre-employment testing program. But labor turnover the first year ran over 40 per cent! Reason: the company had thought exclusively in terms of statistics and skills, had failed to appreciate what it ruefully terms the resort influence, a labor force conditioned by over a half century of seasonal employment.

This was the first mistake the company had made in plant location for nearly forty years. But it was also the only new plant company management had built during that time. . . .

Caught in the post-war expansion fever, a Midwest manufacturer decided to build elsewhere. The plant manager was handed the job of selecting the new location. An ex-production man, he concentrated on sites close to component suppliers, spent six months checking sites in five states. Under heavy management pressure and virtually on the brink of a breakdown, he turned to a team of consultants who showed him (a) that none of those sites would improve the company's competitive position in terms of costs and (b) that his criteria were faulty. His most expensive variable was the cost of outgoing shipments of high-value freight, not unassembled components. By locating closer to the center of the market, those costs were pared considerably more than incoming freight increased. Moreover, one warehouse was thereby eliminated, with all of the usual handling, repacking, inventory control and trans-shipping costs.

Most expanding companies, however, are not prevented from making mistakes either by building upon past experience or by consulting specialists. They just go ahead and make them. Ironically, management often is unaware that it *has* pulled a boner. What happens is this: after a little study and a vast amount of travel, management agrees on a site. As nearly as the

executive committee can determine, operating costs at the new site will be as favorable as at the home plant, where costs are competitive with the industry. After the plant is built and staffed and production begins, these estimates prove to be accurate. Compliments are offered all around and everybody is happy. And the odds are that ten years later management will still be happy. Happy, that is, unless during the intervening time a competitor who has traveled less but analyzed more locates in an area not as good as but *better* than his current location. And this is happening all the time.

Everybody wants YOU!

Because it is, industrial location is fast becoming big business. State and local governments have been tooling up for the last decade to attract industry and though, in many respects, their machinery is cumbersome and unco-ordinated. Their stepped-up advertising campaigns are pulling an increasing load of inquiries. Scores of municipalities are forming community corporations backed by stocks and bonds subscribed to by local citizens. In Minnesota, for example, more than 50 towns have formed them or are in the process. Chambers of Commerce have accelerated their activities. At the State level, apart from more or less traditional wooing tactics, development credit corporations have sprung into action in the last five years. There are now five in New England alone. Their basic function is to meet the need of growing businesses for medium and long-term funds. They specialize in taking risks. Money comes from loans from member financial institutions—over 300 are members—equity capital from stockholders and loans from non-member sources.

There are also now supra-state groups. The Great Lakes Industrial Development Council,

In the course of preparing this section on location analysis, senior editors Alfred G. Larke and James K. Blake held round table discussions with dozens of executives from utilities, railroads, Chambers of Commerce, State development agencies, consultants, and industry. Over a six month period, the editors travelled about 7,500 miles, studying company site selection practices, talking with the men who make decisions. Here it is, as they see it. . . . The Editor



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for instance, taps five states, brings together specialists from railroads, utilities, Chamber of Commerce, industrial real estate men, and state officials for annual reviews of trends and tactics. Founded four years ago, at the first meeting a handful attended. Hundreds came to the last meeting in January.

Coming up fast, though rather tardily into the field are the management consultants, most of whom have added or are thinking of adding at least one location specialist to their staffs. Longtime specialists in the field, Fantus Factory Locating Service, estimates that their business has increased approximately 200 per cent between 1950 and 1955.

In this atmosphere of ready and often strident welcome, how can an increasingly professionalized management make mistakes? The key answer is that management has had little experience in plant location techniques. To-day's top team matured management-wise during the thirties, their companies typically recovered during and soon after the war and this expansion phase is their first. Then, too, locating a plant appears to present a fairly simple, more or less mechanical problem. You merely determine what your requirements will be and then send an executive-scout out to beat the bushes until he finds some compatible geography.

The situation is roughly equivalent to a newly wedded couple house hunting for the first time.

Industrial house hunters, for instance, think

they know their requirements. But three types of errors are constantly being made. First, lack of proper co-ordination and control. Nearly every major department in the company should contribute an analysis of its current needs. These studies should be carefully evaluated by a top management committee before a full bill of particulars is drafted. Routine stuff? Maybe, but then there is the case of the large multi-plant manufacturer who bought a war-surplus plant for cents on the dollar—a real bargain, they thought. It wasn't until the papers were signed that the traffic department was called in to make rate studies. Their advice: Unload the plant fast. Freight bills would make their product competitive in only one of four major marketing areas!

Ask: "What's Around the Bend?"

Another type of error springs from a failure to look ahead. A new plant is a long range proposition. Over a decade or more the composition of a market can change, its geographical location may shift, or the nature of the product itself may shift. Relying on studies which do not take into account recognizable trends in their infancy is risky business. But the forward look extends beyond even the company's own future. Studies made by one company, for instance, showed that the plant could be located in either of two states. The state that got the plant was given the nod because its taxes were lower.

Management, however, had neglected to check the state's per capita debt, which was sizable. Within a year, taxes were raised to a point where the other state would have been a better buy.

Still another type of error is nurtured by a very human predisposition to accept the status quo as inevitable or desirable. The Fantus organization, for instance, points out that frequently a manufacturer's entire thinking about new plant locations is colored by his current location of warehouses—and these may be improperly located with respect to to-day's distribution patterns. Management's thinking in instances of this sort accepts the status quo as a fixed point of departure. One important factor in plant location, for instance, is proximity to suppliers. A New England company whose center of market had shifted to the Midwest held up a decision to relocate for years with a consequent profit loss because its major supplier was located in Boston and its requirements were such that no other company could handle the job. When the consultant suggested that *both* companies move, the problem was solved.

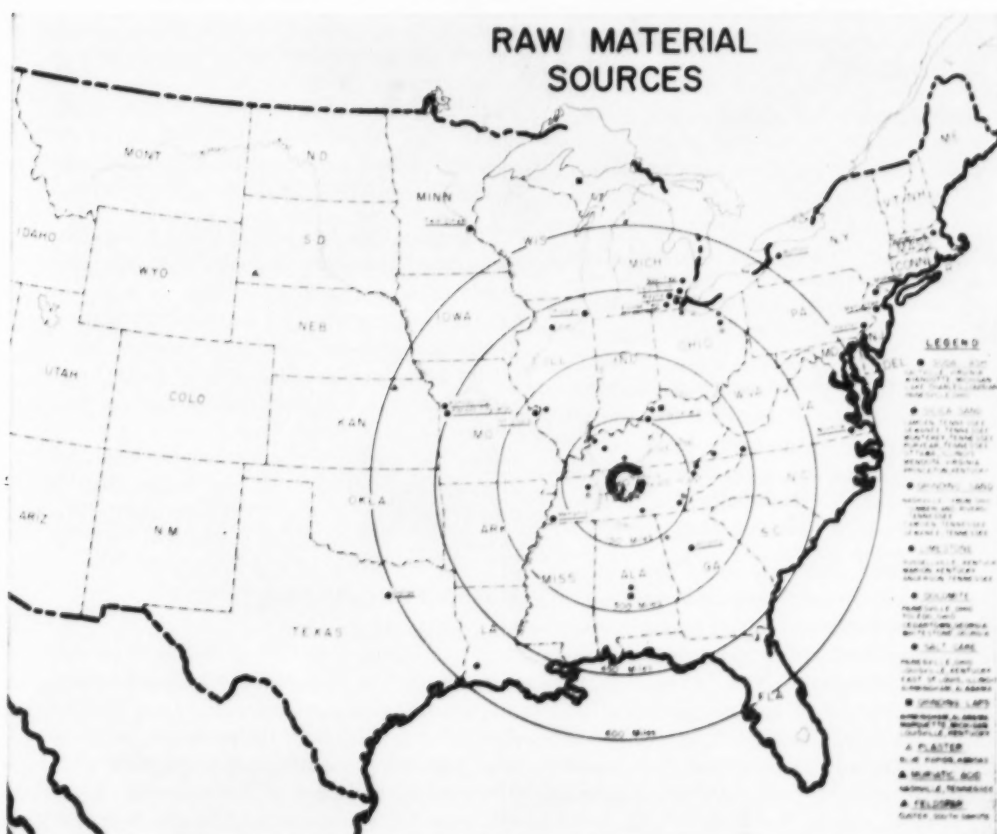
Another example of a false preconception involves labor—though this one is diminishing, it is still around. It is the idea that rural labor is inefficient, that it doesn't train well for indoor jobs and that the proof of this lies in the fact that rural labor is likely to be lower in cost. "You get what you pay for" is the assertion that usually winds up this argument. In fact, however, it is real income that counts and living costs are the key to the worker's satisfaction with the contents of his pay envelope. In a rural community, those costs are apt to be lower. This is the actual reason why one company decided not to locate in a country town, although its stated reason was that the community could not supply 800 workers. Another plant is there now with more than 1,500 ex-farmers on its payroll. . . .

When Is a Fact Not a Fact?

Complicating the matter for most companies is the weird process of gathering the facts management thinks it needs about prospective sites. There is, first of all, the problem of separating fact from apparent fact. At the state and local government levels there are a number of interested groups, aside from Chambers of Commerce, railroads, industrial real estate firms, and utilities, who are able to present thorough briefs of positive information. Here, the real must be culled from the apparent.

A typical enthusiastic report, for example, may show that a major highway skirts the town and the implication is that this means good truck service. It may be, however, that although trucks roll on the road, they don't stop because of the ICC franchise system until they reach a transfer point further on. . . . And the fact that a gas line runs through the area does not necessarily mean that gas is available to the area. . . . Or labor costs computed, as most are, on the base rate pattern may be misleading because fringe

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Raw material sources for Ford's new glass plant were *not* determining factor in selection of site. Most glass plants are located on or close to sand because of tremendous tonnages consumed. Ford studies showed that the costs of delivered raw materials were only about 7 per cent of total costs.

Greater reliance on competition in rates among the different types of carriers, subject always to essential safeguards of ICC regulation, would make for more efficient use of our transportation plant, and more economical service for all of us. This key recommendation in the report of a special Cabinet-level Advisory Committee named by the President is here discussed by Mr. Faricy.

THE RIGHT TO COMPETE

Cornerstone of Modern Transportation Regulation

by WILLIAM T. FARICY

President, Association of American Railroads

THREE outstanding facts about transportation in the United States today are:

1. that "within the short span of one generation this country has witnessed a transportation revolution";
2. that "during this same period, government has failed to keep pace with this change";
3. that "in many respects, government policy at present prevents, or severely limits, the realization of the most economical use of our transportation plant."

These statements are not mine. They are from a report made by a special committee of Cabinet officers and other high ranking government officials established by President Eisenhower in July, 1954. The report, made public by the White House in April, 1955, was unanimous, being concurred in by all seven of the Cabinet-level officers who composed the Committee.¹

The key recommendation of the Cabinet Committee is that in today's competitive transportation world, where the user has his choice of many means of carriage, greater reliance should be placed on competition in pricing as among the various modes of transport. This is what the Committee regards as the "cornerstone" of a modern system of regulation designed to bring

about a more effective use of our transportation resources.

Regulation, Yes, But Not Allocation

As matters now stand, one of the principal tests applied by the Interstate Commerce Commission in its control over rate competition among the different types of carriers is the concept that the government's power to regulate rates should be used to see that each form of transportation gets what the Commission deems to be its "fair share" of the available traffic.

Thus, when the railroads proposed to reduce rates upon tank-car movements of petroleum products in California and Oregon as a means of regaining some of the traffic which had been lost to barges and trucks, the Interstate Commerce Commission found that the proposed rates, while yielding revenues which would "contribute substantially to the overhead burden and profits," should nevertheless be rejected because they were lower than the cost to the shipper of using the competing barge-truck routes and thus "lower than is necessary fairly to meet the competition." Moreover, from the Oregon points, the ICC ordered the rates cancelled because they would "affect adversely the maintenance of competitive motor-carrier transportation."²

For like reasons, the Commission has refused to allow railroads to make competitive reductions which they have proposed in rates on sugar from ocean ports to Cincinnati and Louisville, on tinplate from Alabama to New Orleans, on petroleum products from Whiting, Indiana, to Illinois points, on coffee from Los Angeles and San Francisco Bay points to Northern Utah and Idaho, on magazines from Philadelphia and Darby, Pennsylvania, to Texas, on sulphur from Texas to Wisconsin, on scrap rail from Gulf ports

to Chicago and on aluminum articles from Texas to Illinois and Iowa—to name a few other instances.

Such a policy of attempting to allocate business among the different types of carriers requires, in effect, that one form of transportation hold an "umbrella" over the rates and traffic of its competitors by another form of carriage. But if one form of transportation, because of its inherent nature, is able to move a given commodity between given points at a lower rate than competing forms, to do so at a profit, and to do so without discriminating against other shippers, then why should not the low-cost carrier have the business and why should not the public have the saving?

That, in essence, is what the Cabinet Committee's report proposes—namely, that the law should make it clear that through its power of rate regulation neither the Interstate Commerce Commission, nor any other governmental body, should undertake to allocate and divide business among the different types of carriers. The position of the Cabinet Committee is that "the market"—competitive pricing along with competitive service—can do this job better than it can be done by any sort of government allocation.

Essential Rate-Making Standards Maintained

In taking this position, the Presidential Committee did not recommend, and no one contemplates, doing away with the power of the Interstate Commerce Commission to regulate rates. Rates would still have to be published in tariffs filed by the carriers with the Interstate Commerce Commission, as they now are, and still would have to be adhered to as published. Rates still would not go into effect ordinarily

¹Revision of Federal Transportation Policy: A Report to the President, April, 1955. U.S. Government Printing Office, Washington, pp. iv, 20. Members of the Committee are Sinclair Weeks, Secretary of Commerce, Chairman; Charles E. Wilson, Secretary of Defense; and Arthur S. Flemming, Director Office of Defense Mobilization, and, as Ad Hoc Participating Members, George M. Humphrey, Secretary of the Treasury; Arthur E. Summerfield, Postmaster General; Ezra Taft Benson, Secretary of Agriculture; and Rowland E. Hughes, Director, Bureau of the Budget. The report and recommendations of the Committee are unanimous.

²284 ICC, pp. 287, 296, 304, 306.

until 30 days after filing, and there still would be opportunity for shippers or other carriers to protest or for the Commission to act on its own motion.

The Commission would still have responsibility and power to see that rates are neither unreasonably high nor unreasonably low—a principal test being that they shall be compensatory to the carrier proposing them—and that they do not unjustly prefer or discriminate against any person, any community, or any region. But within these limitations, the recommendations of the Presidential Committee contemplate that competitive pricing, as well as competition in service, should prevail.

Such a result could be accomplished by a simple change in the statutory standards to be applied in determining whether a proposed rate is lower than a reasonable minimum, without affecting the other standards presently applied by the Interstate Commerce Commission. The essential standards would continue as they now are *except* that in determining whether a proposed rate would be less than a reasonable minimum the Commission shall not consider its effect upon the traffic of any other mode of transportation, nor its relation to the charges of any other mode, nor whether it is lower than necessary to meet the competition of any other mode of transportation. Such a proviso would make it perfectly clear that the Interstate Commerce Commission is not expected to undertake an artificial and arbitrary apportionment or distribution of traffic among the several forms of transport.

With traffic distributed in accordance with the natural capabilities and advantages of each kind of carrier, a better balanced development of our national transportation plant would follow. In such a development, each mode of surface transport—rail, highway and water—would take its proper place and part, performing those services which it can do better and more economically than the other modes, with both rates and service always taken into consideration. And the public, the users of transportation, would get the benefit.

This sound idea, so thoroughly in accord with the customs, the traditions and the thinking of the American people, has been met with bitter objection from spokesmen for some of the trucks—principally the heavy highway freight haulers—and some of the inland waterway barge carriers.

They have objected to the composition and the procedures of the Cabinet Committee and the working group, or staff, by whom it was assisted. Attempts have been made to create an impression that the working group gave consideration to the views of the railroad industry alone, but the fact is that other groups also submitted their views and that representatives of the trucking industry submitted written recommendations and also discussed them with the

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chairman of the group. The insinuation that the seven high government officials who concurred in its unanimous recommendations, and also the group of highly qualified and disinterested private citizens who did the preliminary staff work, listened only to railroad representations is simply not true.

The "Monopoly" Bugaboo

According to assertions of trucking spokesmen, this recommendation for greater freedom of competition between different modes of transportation would turn transportation back to a state of "cut-throat competition" said to have existed before 1887, when the original Act to Regulate Commerce was passed.

There isn't a chance of a return to the conditions of 1887, either in the physical facts of transportation or the legal terms under which the business is conducted.

In 1887, the only effective competition was that among railroads. Since then, billions of dollars have been spent on building and improving waterways, and the waterways are here and will remain. Many more billions have been spent on improved highways, and the highways are here and will remain. These waterways and highways are used by tens of thousands of common and contract carriers by water and by motor vehicle. They are also open to the use of anyone who wishes to move his own goods in his own vehicle, and vast tonnages are so moved. Indeed, nearly two-thirds of all intercity freight traffic on the highways and more than nine-tenths of inland waterway traffic is either of this character or is otherwise exempt from interstate regulation as to rates. The mere physical facts as to the extent of transportation facilities in this country, and the variety of their ownership and use, make any chance of general monopoly in transportation too remote to deserve consideration.

From the standpoint of the laws, there has been an equally striking change. Prior to 1887 rates could be made in secret. Now rates are required to be published, with due public notice, and must be adhered to as published. Prior to 1887, there was no statutory prohibition against discriminations or preferences in rates. Now, rates of regulated carriers cannot discriminate against one shipper, or commodity, or community, or region, and cannot prefer another.

There is no recommendation in the Cabinet Committee's report which would depart from these requirements. Adoption of the Committee's report would not authorize the making of secret rates. It would not do away with the requirements of public notice and of adherence to the published rate. It would not permit the making of rates which are either discriminatory or preferential. And the Interstate Commerce Commission would have power to enforce these principles, as well as to prohibit rates which are either unreasonably low or unreasonably high.

No, with competition what it is and the laws what they are—and what they will remain if greater freedom of competition in pricing as among the different modes of transportation is adopted—there is no possibility that a transportation monopoly could be created or sustained.

No Below-Cost Rates

But motor and water carriers assert that to permit greater freedom in the making of competitive rates would enable the railroads to destroy highway and waterway competition. It must always be remembered, however, that under the Cabinet Committee's recommendation, as well as under present law, railroads could not make below-cost rates. If it be true, as claimed by spokesmen for trucks and barges, that they could not continue to exist in the face of competitive rates which are compensatory and non-discriminatory, then it would follow that trucks and barges often would have no proper place in the transportation system and would exist only because the railroads are restrained from meeting their competition.

Such an assertion is, of course, absurd. In transporting many kinds of freight, trucks and barges have advantages in service or cost or both. The report contemplates that trucks and barges should have complete opportunity to give full force and effect to their competitive advantages whenever they exist—the same opportunity, in fact, as is proposed for the railroads.

Another assertion of opponents of the recommendation, equally baseless, is that greater freedom in competitive rate-making would burden shippers of so-called non-competitive or "rail-bound" traffic. The assertion has repeatedly been made that if rail rates on competitive traffic are reduced it would be necessary for non-competitive traffic to pay higher rates to offset the revenue losses.

Rates \times Volume = Revenue

Such assertions rest on a completely erroneous premise, namely, that lower competitive rail rates would reduce rail revenues. Railroad revenues are the product of two factors, rates and volume. The only motive or purpose the railroads would have in publishing reduced competitive rates would be to attract enough increased volume to more than offset the reduction in rates, and thus to produce greater net revenue.

Such competitive rates, it should be borne in mind, would be required to be compensatory as well as non-discriminatory so that instead of hurting non-competitive traffic, they would benefit it by reducing the share of the necessary fixed overhead expense the non-competitive traffic is called upon to bear. What the shippers of non-competitive traffic have real reason to fear is that competitive traffic will continue to be drained from the railroads, thus increasing the burden of overhead and fixed expense

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which will have to be borne by the traffic remaining on the rails.

How this works in practice was well stated by the Interstate Commerce Commission as follows:

"It is a well-established and generally recognized rule that if additional business can be taken on at rates which will contribute at least a little in addition to the actual out-of-pocket expense, the carrier will be advantaged to that extent and all its patrons will be benefited, to the extent to which such traffic contributes to the net revenue."

The Competitive Principle

The competitive spirit has been the driving force of progress in America; the competitive principle is the very foundation of our national economy. That greater reliance should be placed on this principle in the determination of rates as among the several kinds of carriers—always subject to the continuing limitations of essential ICC regulation outlined above—is the heart of the Cabinet Committee's recommendations.

While spokesmen for trucking and barge interests object to the principle, it has received the endorsement of such major organizations of users of transportation as the American Farm Bureau Federation, the National Grange, the

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Chamber of Commerce of the United States, and the National Industrial Traffic League, which is the major nation-wide organization of men who, as shippers, deal daily with the practical problems of rate making and regulation.

What this experienced body of transportation experts, who use the services of every kind of carrier and are concerned only with maximum transportation efficiency, has to say on the subject is particularly in point. On November 23, 1955, the League approved amendment of Section 15a(2) of the Interstate Commerce Act by adding the following proviso to the considerations to be taken into account by the Interstate Commerce Commission in "the exercise of its power to prescribe just and reasonable rates":

"Provided, however, that in determining a minimum rate the commission should not consider the effect of such rate on the traffic of any other mode of transportation, the relation of such rate to the rate of any other mode of transportation, or whether such rate is lower than necessary to meet the competition of any other mode of transportation."

Without going into any of the technical details involved, President Eisenhower, in his message on the state of the Union submitted to the Congress on January 5, 1956, had this to say:

"In my message last year, I referred to the

appointment of an advisory committee to appraise and report to me on the deficiencies as well as the effectiveness of existing Federal transportation policies. I have commended the fundamental purposes and objectives of the committee's report. I earnestly recommend that the Congress give prompt attention to the committee's proposals."

Fundamental among these proposals is that to allow greater freedom in pricing among the different types of transportation. Under such conditions, with each user of transportation free to choose the type of carriage which best meets his needs for any particular task, the transportation needs of the nation as a whole would be met with maximum efficiency and at minimum cost—and the producer, the shipper, the consuming public and the national defense all would benefit.

* * * *

We shall be glad to send additional copies of "The Right to Compete: Cornerstone of Modern Transportation Regulation" to those who request them. Address: Association of American Railroads, 950 Transportation Building, Washington 6, D. C.

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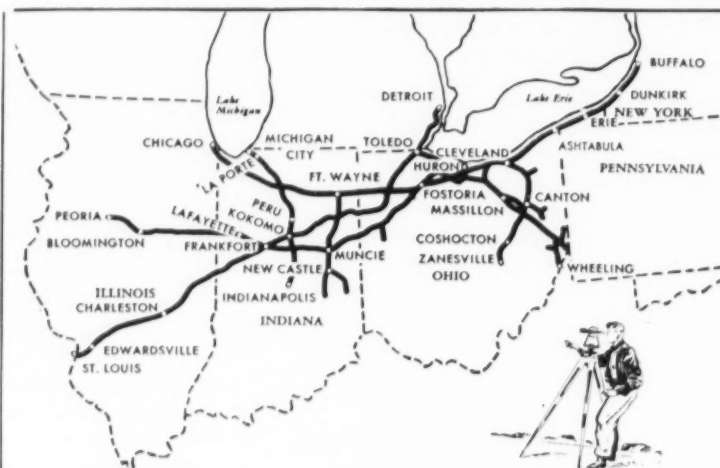
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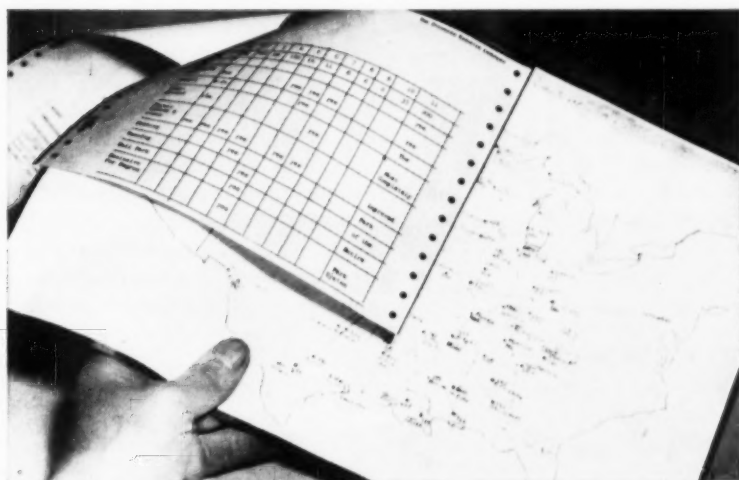


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Preliminary studies made by Standard Register run gamut from recreation, top chart, which shows facilities available in one community's public parks, to distribution studies, bottom, showing distance to major centers.

payment practises in the area may more than offset the reasonable base rate. A practise such as bonuses for the night shift, for instance. . . .

Services rendered by these groups are invaluable. But experienced companies use them as a kind of preliminary report which either qualifies or eliminates a community. Though many of these reports are highly detailed, particularly with respect to specific site locations, they cannot supply all the answers.

After Basics, New Basics

One question that seems to be growing in importance, for example, relates to community attitudes. Some corporations investigate, like a sociologist, the social strata of a town. When one town was turned down for General Motors Fisher Body plant, the disappointed mayor asked why. He was told, "No sewage treatment plant; the rundown appearance of residences; the poor appearance of the downtown area; lack of civic pride; hotels of poor quality and lack of eating places, and poor traffic conditions; inadequate schools and hospitals." GM figured its executives and hard-to-get engineers would not want to live there. In a study of plant location factors made by the University of Oklahoma over 20 per cent of all factors mentioned related to community attitudes. A community checklist developed by Standard Register Company of Dayton, Ohio, includes an analysis of the town's park system, notes even whether there are outdoor fireplaces!

After long experience, some of the larger companies have developed rules of thumb that apply in judging any community as a prospective plant site. General Electric, for instance, prefers not to locate in any town where it will hire more than 15 per cent of the available labor force. On the other hand, it prefers not to move a tiny plant into a big metropolitan area where its corporate voice would be muffled, if not lost. Another company with a highly technical product knows it must locate close by an engineering school, because a high proportion of its staff are engineers who are working on advanced degrees. The Fantus Factory Locating Service technicians consider any town with more than 50 per cent of all employees in manufacturing industry as saturated from the management point of view, because there is too much competition for the services of the labor market. Criteria vary industry-wise and among companies.

Learn Before You Look

Essentially, however, there are two distinct phases to scientific location analyses. The first is preparation of requirements studies. Before Du Pont located its Dacron plant near Kinston, N.C. studies were made by representatives of seventeen departments. Studies included: industrial analysis, site surveying, plant operation, construction, land costs, process design, tax liability, soil mechanics, power availability, transportation costs, manpower and community, raw material sources,



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Continued from page 67

site development, economic analysis, water and waste, air pollution and weather, and legal counsel. After these were completed, two engineers traveled over 20,000 miles on 10 trips, examined 87 sites "and conferred with scores of company specialists." All in all, 83 factors were weighed. Months of work preceded the decision.

Legwork Comes Last

The second phase is finding the site that meets your requirements. The studies usually narrow the search to a two or three state area. Companies with considerable experience, which nonetheless does not preclude the possibility of making errors, often begin at the state level, checking cost factors affecting company operations with studies ranging from the voting record of Senators and Congressmen to such things as the number of secondary boycotts per million population, strikes per 100,000 non-farm employees, teachers' salaries, number of state employees per 1,000 population and workman's compensation costs.

With the best state from an operating point of view chosen, the circle narrows to a number of communities. The communities that meet the basic requirements are

then surveyed. (One workable checklist begins on page 98.) Needless to say, during all of this the seasoned company carefully hides its identity. One company has special calling cards for its investigators identifying them as "Joe Blow" of a fictitious management consulting firm. Another company hires automobiles since it was identified once through an investigator's license plates.

Co-ordination Case Study

Because these studies require extensive work by a number of departments, a prime factor for success is co-ordination and control. Here's how that is handled at the Ford Motor Company. Studies begin under the supervision of the General Manager of the interested Division to determine the advisability of building a new plant. These studies are then reviewed by his counterparts in the Central Staff Offices, such as the Capital Investment Analysis Department of the Finance staff and the project is finally presented to the Executive Committee for approval.

Approval granted, the project moves back to the Central Staff for additional studies which are co-ordinated by the Plant Engineering Office of the Manufacturing Staff.

First, the Property Management



Thorough studies made by railroads and utilities are available free (C&O studies shown here) to industry, are an invaluable source of preliminary data once choice has been narrowed down to several specific communities.

WHY WORRY About a Warehouse Site?

Get Same Economies the Leaders Enjoy with Dependable Warehousing—The LEHIGH Way!

IF these are your objectives:

- 1 Nearest site location to key consumption points of your trading areas
- 2 Avoidance of high purchase cost, fixed costlier overhead-operating expense of company branch warehouse—with all its burdensome problems
- 3 More efficient movement of goods for your warehousing-distribution dollar . . . plus lowered, overall costs

Then, you will prefer the Lehigh Way! Select your site from any of NINE well located Lehigh Warehouse-Distribution Centers.

Over FIVE HUNDRED Management, Traffic, Sales Executives chose Lehigh . . . Why? Because comparison of "true costs" and efficiency showed con-

vincing proof Lehigh offered economies they could get, but were not yet getting. Company case stories are available on request. Ask for them, today!

NINE LEHIGH WAREHOUSE-DISTRIBUTION CENTERS

LEHIGH WAREHOUSE CO. Newark-Eliz., N.J.	Port Newark, N.J.*
LEHIGH MARINE WAREHOUSE* Brooklyn, N.Y.	VIRGINIA BONDED WAREHOUSE & TRANS., Co. Richmond, Va.
LACKAWANNA WAREHOUSE CO. Jersey City, N.J.	Atlanta, Ga.
LEHIGH TANK TERMINAL Bayonne, N.J.	Horsesheds, N.Y.

*Agents for Port of New York Authority

Physical operating data on each site in Feb. issue, Distribution Age, and in current issues, Traffic World; or contact Lehigh direct.

LEARN THE FACTS BEFORE YOU ACT

LEHIGH WAREHOUSE & TRANSPORTATION CO. INC.,
98-108 Frelinghuysen Ave., Newark 2, N. J.

"Please demonstrate with our 'true costs,' why Lehigh's Warehouse System offers benefits that cannot be obtained by the company operated branch warehouse."

☐ Phone me for appointment at _____ (TEL.)

☐ Send literature only

My Name is: _____ Title _____

My Company: _____

Address: _____

Our Product: _____ Weight _____

Package Size: _____

(Advertisement)

Will your new plant have adequate fire protection?

It's been said that the trend toward decentralization of industrial plant sites has created the biggest fire hazard in U. S. history.

Certainly the great number of factories and warehouses being built in suburbs and small towns will put a strain on the facilities of many small community fire departments. Equipment — particularly pumper apparatus — water supplies and manpower are frequently too limited to handle an industrial fire of any proportion.

The Burning Question is

If you are locating your plant in an outlying area, what will your situation be when a fire gets past the hand extinguisher stage?

How much damage will be done by the fire (and your sprinkler system) before the fire department arrives? Once there, will they be able to stop the blaze before it becomes a sizeable loss or a disaster? And if they "drown out" the fire, will the water damage be heavier than the damage caused by the fire itself? The answers may appear discouraging — but there's an effective way out.

Company owned, in-plant fire fighting equipment has proved to be far-and-away the best solution. Furthermore, managements that have thoroughly studied the available types of apparatus are favoring *high pressure fog* equipment increasingly.

Why High Pressure Fog?

The John Bean organization in Lansing, Michigan has some convincing facts to offer. High pressure fog (ordinary water discharged from a special high pressure fog fire gun at upwards of 600 lbs. per square inch) is 10 times more effective

than water used at ordinary pressures. It fights fire three ways — it cools, smothers, and isolates — using only one-tenth the amount of water required by conventional streams.

High pressure fog's heat absorbing capacity is unmatched. It's a fact that high pressure fog from one gun, discharging 30 gpm, absorbs 283,140 Btu of heat per minute — equivalent, approximately, to the heat being given off by 600 home furnaces. As the fog is driven into the fire, it instantaneously turns to steam. Expanding in volume 1700 times, it forms a smothering blanket that kills the fire. High pressure fog also isolates other materials from heat radiation to prevent spread of the fire.

Water damage to machines, materials in process, and the building is negligible. Plant down-time is minimized.

Two General Types

Plant designers have a choice of stationary or mobile high pressure fog equipment. Stationary units, with electric powered high pressure pump and one or more hose lines, can be placed advantageously in high-hazard plant areas. These compact units take up very little floor space.

The mobile units are complete, small-scale, high pressure fog fire trucks (see below). They are compact and built with a short turning radius to maneuver through factory aisles with ease. John Bean makes several highly efficient models of both types.

For more information, write Industrial Sales Department, John Bean Division, Food Machinery and Chemical Corporation, Lansing 4, Michigan.



Continued from page 68

Department of the Finance Staff is responsible for the purchase of all real estate and real property.

Second, the Hourly Personnel Department of the Industrial Relations Office investigate the labor market in the area surrounding a proposed site and submit their recommendations relating to the suitability of the labor pool for the plant's requirements, both current and future.

Third, the Office of Tax Affairs makes an extensive search of the current tax situation in the communities involved and estimates not only the present taxes but the tax future of the community as the impact of the new manufacturing plant will affect it.

Fourth, the Office of Civic Affairs concern themselves with the political reaction to the proposed facility and work with the local government in deciding the advantages and disadvantages of annexation, buffer zoning, and other important phases of community development and planning.

Finally, the Plant Engineering Office of the Manufacturing Staff makes all site reconnaissance for

new facilities, co-ordinates the efforts of the Staff and Division activities to acquire sites in the most efficient manner possible, submitting recommendations for the selection of new sites to the Vice-President of the Manufacturing Staff. The recommendations then move to the Executive Committee where the final decision is made. From this point the Plant Engineering Office handles the site through design and construction and installation of equipment, then gives the key to the Division for their management.

You Can't Afford to Lose

The machinery at Ford is suggestive of the mechanism any organization must create in order to minimize the margin of error in plant site analysis. Or you can look at it this way: If you make the proper studies well in advance co-ordinated and controlled high on the staff level, your new plant can save from 5 to 10 per cent of your current manufacturing and distribution costs.

Labor Policy when the Plant Moves . . . page 73

MAIL THIS COUPON TO GET **SITE-MAP** GIVING DETAILS ON 300 PLANT LOCATIONS IN SOUTHERN NEW JERSEY

"Most valuable tool" in plant site study, said many executives. Jam-packed with solid stuff, graphically presented. 300 available sites, 1 to 4,000 acres, including deep-water Delaware River location. Buildings, too! And illustrations showing railroads, highways, Turnpike & Parkway, 99 municipalities, ownership of sites, water sources (2,000,000,000 gals. daily!). Airports, rivers, utilities, etc. Freely available to interested companies without obligation. Just mail the coupon for your SITE-MAP today.

SOUTHERN NEW JERSEY DEVELOPMENT COUNCIL

95 Arcade Bldg., Boardwalk & Tennessee Ave.
Atlantic City 4-3338, G. Raymond Wood, Dir.

Please send the latest SITE-MAP.

COMPANY _____

NAME _____

ADDRESS _____

CITY _____

STATE _____



What is your **first** requirement in a plant site?

1
GRIFFITH

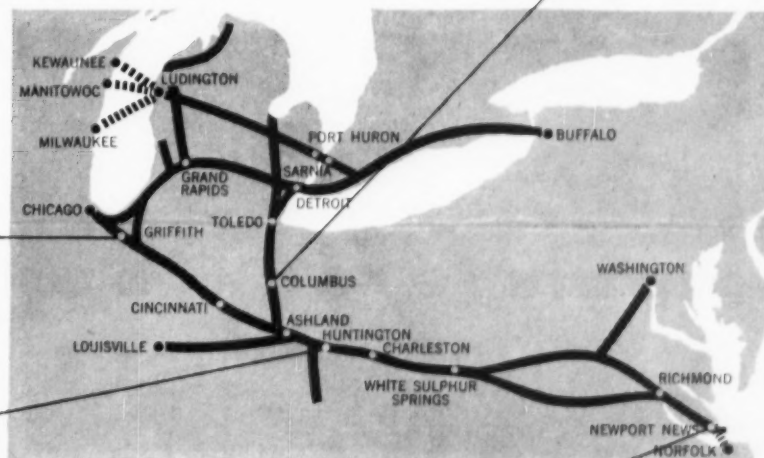
SKILLED LABOR?

From Griffith, Indiana, hundreds of industrial workers commute to Gary, Whiting, East Chicago and Hammond. They would be glad to work nearer home. Five railroads offer unusual transportation advantages. Chesapeake and Ohio has several large sites available, together with a water conditioning plant.

1
COLUMBUS

DISTRIBUTION?

Strategically located to serve the rich Midwest, this 21-acre site is only a few minutes by express highway from the center of Columbus, Ohio. All utilities and municipal services. C & O spur. Several large manufacturers have chosen this same development for their regional distribution warehouses.



1
HUNTINGTON

RAW MATERIALS?

Abundant supplies of coal, natural gas, sand, pulpwood and many other natural resources are among the reasons for West Virginia's rapid industrial growth. This 32-acre site in the thriving, pleasant city of Huntington would exactly meet the needs of many industries.

1
NEWPORT NEWS

IMPORT OR EXPORT?

Adjacent to the Port of Newport News with frequent sailings to all parts of the world, this site would be ideal for a plant which either shipped its product abroad or imported its raw materials. 200 level acres with all utilities in, a stable labor supply, and a spur to the C & O main line.

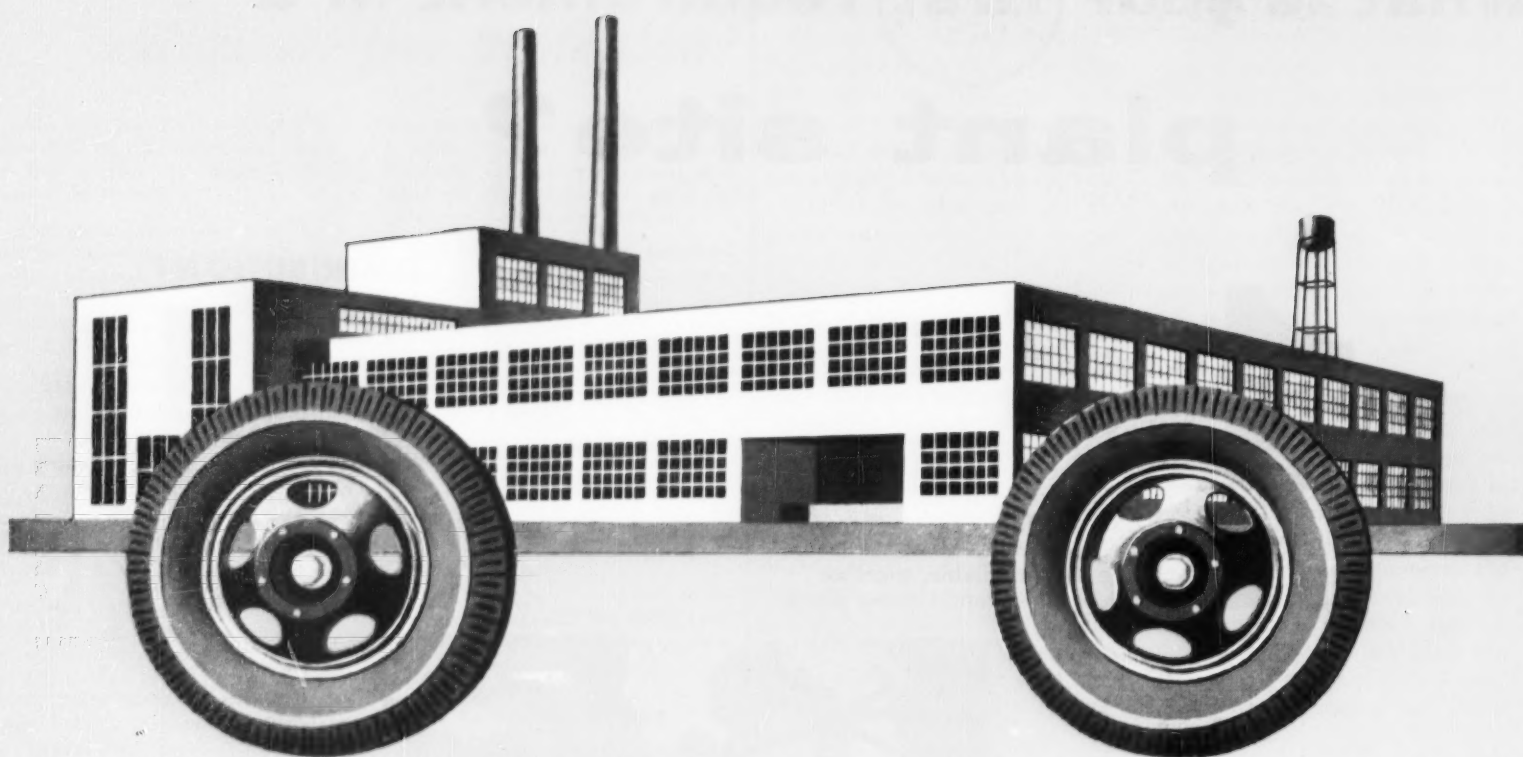
TELL US WHAT YOU WANT. Tell us your acreage, labor, water, fuel, raw material requirements. A staff of experts will give you a detailed analysis of several suitable sites in relation to your own specific needs. Your inquiry will be handled in complete confidence. Address:



Chesapeake and Ohio Railway

INDUSTRIAL DEVELOPMENT DEPARTMENT, CLEVELAND 1, OHIO

SERVING: VIRGINIA • WEST VIRGINIA • KENTUCKY • OHIO • INDIANA • MICHIGAN • SOUTHERN ONTARIO



New plants aren't built on wheels

When building a new plant, site selection is one of the most important decisions you make before breaking ground. That is why the caliber of the firm you select to locate, engineer and construct your plant is so lastingly important.

The high quality of Ebasco construction—the integrity, skill and experience of Ebasco personnel—are evidenced in the more than two billion dollars of plants that Ebasco has engineered and constructed in its half-century of service to many different industries in many parts of the world.

If you would like to become better acquainted with Ebasco, write for our booklet, "The Inside Story of Outside Help", Ebasco Services Incorporated, Dept. N, Two Rector Street, New York 6, New York.

1905 *Fiftieth* 1955
Anniversary



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PORTLAND, ORE. • WASHINGTON, D.C.

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LABOR POLICY WHEN THE PLANT MOVES

Moving's a time of new opportunities and new risks,
especially in employee and community relations

"**I F I HAD** my life to live over again . . ."

An individual never gets the chance, but a corporation does.

The idea is so impossible that probably only the chronic daydreamer will waste time to indulge in the fancy about himself. Yet it is an attractive idea—all the youthful mistakes that mature knowledge would avoid, all the missed and muffed opportunities that wisdom would seize hold of and exploit to the full.

For the company, however, closing up shop in one location and opening in another is a fulfillment of that old man's dream—a chance to

do it all over, and this time to do it right.

How much a company improves its operation when it moves to a new scene may, indeed, be the best measure of how much its officers have learned from experience. In almost everything except ownership and the very top management team, there is opportunity to start afresh and avoid old errors.

No one moves a plant for no reason at all, of course, and even an expansion that leaves some operations in the old location while establishing others elsewhere, is some kind of criticism of the initial place. At the very least, the old site has no room for expansion; more likely

the old buildings are becoming inefficient, markets or sources of supply have moved with the years and the company's trying to move with them, or labor or the community may have become uncongenial.

But, though it may move for only one or two reasons, the company misses a good many bets if it seeks to remedy only the situations that spurred it to get up and go. There is no better time to reconsider all policies and procedures.

There is another aspect to this business of a corporation's starting all over, and another reason for carefully studying all the company's activities as they will fit into the new community.

Problem: To build a factory in a country club area

When Selas Corporation of America moved its plant from inside Philadelphia to the suburb of Dresher, Pa., it had a giant community relations problem. Residents in this country-club-like area wanted no factories, suggested Selas locate in a nearby industrial park.

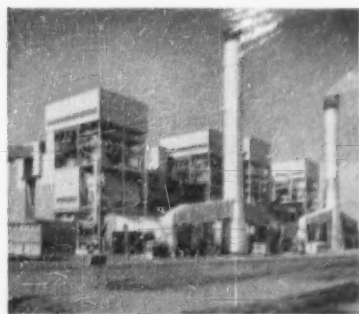
But the company, making single-unit orders of specially engineered equipment, often has customers spend time at its plant; it wanted a more impressive site.

The problem was solved by picking a site which permitted use of a natural declivity to screen the complex of buildings shown at right, below, and by personal calls by company officers on neighboring home owners, to explain this point and plans for clean operations.

To-day, the entrance (left, below) could be that of a country club itself; to see the factory, neighbors would have to take a plane as photographer did for overall view.



MISSOURI



Typical of new power plants in Missouri is the Hawthorn station, steam-electric generating plant of Kansas City Power & Light Company, located in Northeast Industrial district of Kansas City, Mo., with a nameplate capacity of 332,000 KW.

POWER

Plentiful at Low Cost!

Whatever your power needs now—or in the future—Missouri can supply them and at low cost. New generating plants like the one above increase Missouri's power potential every year. And there still remain thousands of acres underlain with coal for suitable steam-electric plants.



— FEDERAL POWER LINES 66KV OR OVER
 - - - - - FEDERAL POWER LINES 33KV
 = = = = PRIVATE POWER LINES 66KV OR OVER
 ~ ~ ~ ~ PRIVATE POWER LINES 33KV

High voltage transmission lines carry private and Federal power to every part of the state, as this map indicates.

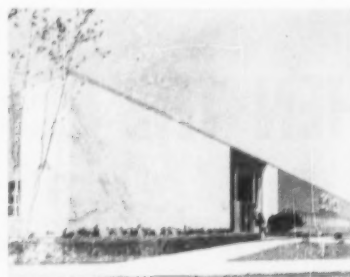
Let us "tailor-make" a plant for you!

Under Missouri's now famous "Tailor-Made" plan, 136 million dollars worth of new plant construction was located here in 1954. Seventeen Missouri cities have acquired acreage and raised preliminary funds to help start your plant—built to your plans, then leased to you on long favorable terms. Or choose from 188 industrial buildings available now. Don't wait, get complete information on Missouri's power, water and many other advantages.



PHONE COLLECT
 Jefferson City 6-7185
 Lisle Jeffrey, Industrial Director
 or write Dept. D698
 Missouri Division
 of Resources & Development
 Jefferson City, Missouri

Schick starts life over, down on the farm



When Schick Incorporated moved from crowded Stamford, Conn., to a new one-story plant (left) on a 56-acre farm in Lancaster, Pa., it started with everything new but its management team, and took full advantage of the opportunity to reframe its policies and its procedures in helpful light of experience.



Completely new workforce got orientation talks in groups this size.



Experienced or not, new hires got job instruction, as here in safety.



ED NANO PHOTOGRAPHS

Industrial relations chief showed new starts the job from ground up.

This is the fact that, with all the opportunities the move opens up, it also reopens risks that may have been successfully bypassed in the past.

A good example of the great variety of ways in which a plant relocation may affect not only major employee and community relations policies but even what have been minor, routine procedures may be seen in some of the problems that Schick Incorporated met and dealt with in moving from Stamford, Conn., to Lancaster, Pa., a year ago.

Long before moving into a new location, a company has to deal with the task of leaving its old one. That can be a major headache, as demonstrated by the experience of two concerns mentioned on page 92; one lost a large number of hard-to-hire technicians because of premature disclosure of a proposed move; the other wound up with a painful sit-in strike in its old plant, despite a severance-pay agreement.

Schick was a major employer in Stamford when it moved. It kept its intention to move a secret even from major staff members for as long as possible—one of the advantages of having consulting engineers conduct location and site surveys for it. In this case, the engi-

neers, The Austin Company of Cleveland, even took option on the new site in its own name and started construction before the move was announced publicly.

Schick had had a contract for many years with a union in Stamford, but had resisted efforts to have severance pay made a part of it. Thus, when the proposed move was announced, it could bargain on severance pay and, as a result, won an important point: severance pay was not payable until the plant operations were successfully moved.

While severance pay for operatives was costly and involved adroit negotiation, arrangements to take to Lancaster the supervisory and middle management people whom it wanted were not simple.

A 36-page mimeographed booklet on Lancaster was prepared and distributed among members of this group. Its table of contents is a good checklist of the factors a company—or its site-locating consultant—takes into consideration in picking a town to move to:

Location of Lancaster, with relation to nearest big cities; brief history of the town; people (native ancestry of Lancastrians) with death and birth rates; city facilities, such as police and fire departments, water

supply, traffic control, garbage collection; nearby agricultural products; religion and denominations of the 58 Lancaster churches (25 denominations); description of hospitals; bus, air, and rail transportation, cab service, time to Washington, Philadelphia, and New York; schools, public and private, and collegiate institutions; description of the plant site and its time-distance from various localities; description of housing as to age and type, with rental and purchase brackets in Lancaster and surrounding communities; physical description of communities with their shopping and recreational facilities; national chain stores available, local farmers' markets, banks and loan companies, veterinarians, auto agencies, light and gas rates, hotels and restaurants, military organizations, service agencies, service and fraternal and veterans' organizations, radio and television stations and network outlets, newspapers, parks, playgrounds, Little Theatre groups, swimming, tennis, and golf facilities, cocktail lounges, beer bars, children's sport leagues. The booklet containing this information went out early in January, 1955.

To fill in any missing data, the company hired a local resident as a personnel assistant and was lent



DF boxcars

can't be wrong about keeping damage costs down!

Forty-four Class I railroads operating 21,424 boxcars equipped with Evans DF are proving every day that you can eliminate transit damage to lading!

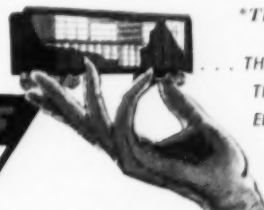
Shippers are requesting DF cars because DF permits them to use more of the car's capacity. They can double-deck without extra expense or inconvenience. They do not have to pay for costly dunnage. The expense of filing damage claims is reduced. And DF cars are available to shippers at no extra cost.

Railroads tell us that DF cars carry heavier loads. Each DF car earns several times more freight revenue per year than an ordinary car.

Whether you're a shipper or a railroad man, you'll benefit by writing, now, for all the details on Evans DF equipment. Address: Evans Products Company, Dept. D-4, Plymouth, Michigan.

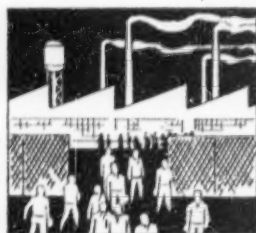
**The number increases every day!*

DF is a trademark
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... only Evans makes it

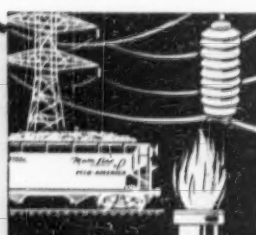


... THE "KID GLOVE" TREATMENT
THAT LOCKS IN LADING ...
ELIMINATES DAMAGE
AND DUNNAGE

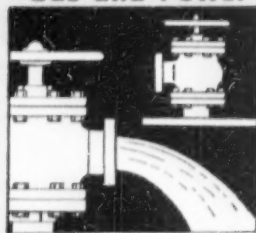
EVANS PRODUCTS COMPANY also produces:
truck and bus heaters; bicycles and velocipedes; Evaneer fir plywood; and Evanite battery separators



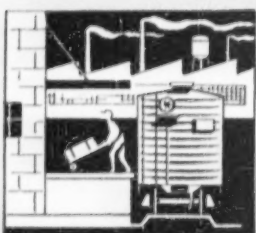
Ample Labor



**Proximity to Coal
Gas and Power**



Abundant Water

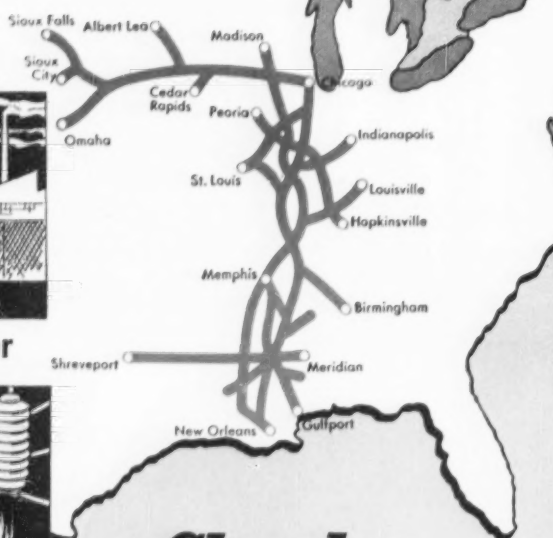


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Check the advantages of a plant site in Mid-America

More and more industries are experiencing the advantages of locating new plants in Mid-America—the land of industrial opportunity. Why not check your own needs with the Industrial Department of the Illinois Central? Our specialists will be pleased to provide detailed information on available sites, labor supply, physical resources and the over-all advantages of particular localities in relation to your company's specific requirements. Your inquiries will be held in the strictest confidence.

J. S. FROST
General Industrial Agent
135 East Eleventh Place
Chicago 5, Illinois



the services of a local real estate man by the real estate board. These two visited Stamford both to meet the people they would be trying to locate in Lancaster area homes, and to answer questions.

The real estate representative was authorized to pay out up to a month's rent, when necessary, to hold a home for a prospective tenant. This gave time for a visit by the Stamford employee's family to complete the deal.

When the name of The Austin Company's client was announced as Schick Incorporated, officers met with community leaders and with some of their opposite numbers in local industries, of course, and before workforce recruiting began, Cecil M. Arrowsmith, director of

industrial and public relations, and Robert E. Sibson, personnel manager, had met with like officials of local companies and reassured them as to Schick's policies. Chief reassurance needed was that Schick planned no raid of others' payrolls, and would hold its hiring to a set small percentage of others' employees. This is likely to be one of the most sensitive points between old and incoming employers.

Although the Schick men did not set the figure in their talks, it was actually decided they would hire no more than 1 per cent of anyone else's current employees. Thus, the small shop with 100 employees lost no more than one of them to the new Schick plant.

This sometimes hurt, as for in-

New plant can be big morale factor, too



Morale and productivity factors, like poor lighting, dingy surroundings, may not motivate move—but the move gives chance to improve them.



Working conditions of these Lancaster employees are obviously superior to those of Stamford predecessors, above. There's a payoff in productivity.

Your new warehouse

can have all of these features

... if it's a BUTLER

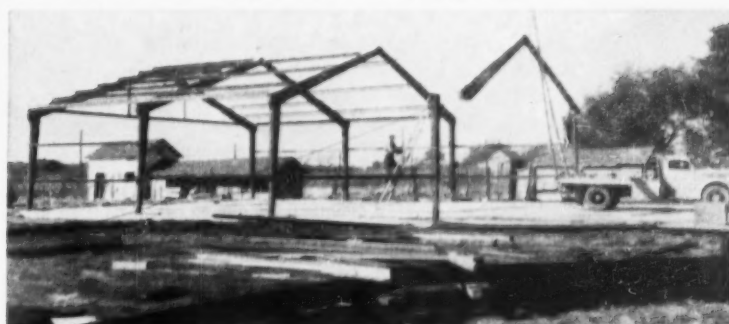


THAT CUSTOM LOOK AT LOW COST—Butler's selection of more than 500 different building combinations can give you a warehouse that looks and "fits" like it was custom-designed just for you. You avoid expensive, slow

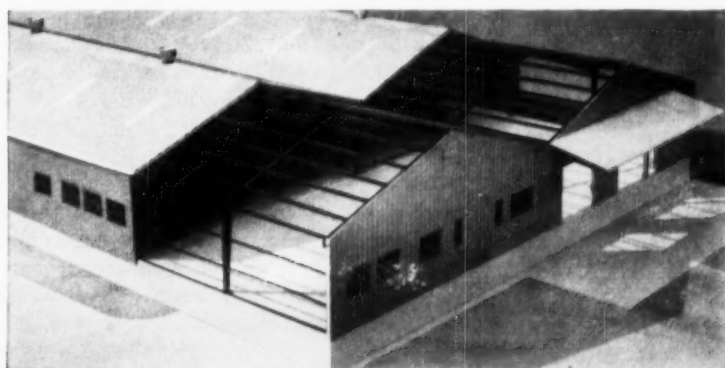
custom-engineering. Special architectural effects such as masonry fronts can be easily applied to Butler steel buildings when desired. Interiors can be easily partitioned with light-weight curtain walls.



LAYOUT FLEXIBILITY for freedom in planning storage arrangements and material flow is provided by Butler's wide, clear spans. And Butler's rigid frame construction lets you stack right to the roof.



FAST ERECTION cuts construction costs and gives you a Butler warehouse weeks to months sooner. Pre-engineered sections are factory-fabricated to go together quickly and make a weather-tight, easily insulated building.



ECONOMICAL EXPANSION—All parts simply bolt together, permitting entire end or side walls to be moved out intact—with 100% salvage of materials. All-steel construction also gives you excellent fire protection and long life.



ASK your nearby Butler Builder (he's listed in the Yellow Pages) to show you the new Butler film on warehouse planning and construction. He will be glad to bring it to your office.



Write for the new catalog about Butler buildings for warehouses or ask your Butler Builder for a copy.

BUTLER MANUFACTURING COMPANY

7417 East 13th Street, Kansas City 26, Missouri

Manufacturers of Steel Buildings • Oil Equipment • Farm Equipment • Dry Cleaners Equipment • Outdoor Advertising Equipment • Special Products
Sales offices in Los Angeles, Richmond, Calif. • Houston, Tex. • Birmingham, Ala. • Minneapolis, Minn. • Chicago, Ill. • Detroit, Mich. • New York, N. Y. • Burlington, Ont., Can.



Our Fourth Dimension...

The other day a fact-finder dropped into our office to get some information for a client planning to locate an industry in Massachusetts. Talk got around to availability of highly trained professional people — engineers and the like. Our pool of top-level workers is one of the finest in the country, but reluctantly we had to admit that you don't find too many such folks at liberty.

At that point, our visitor made the interesting observation that his client did not consider this to be a major location problem. He went on to explain that in their experience, engineers, technicians and other high-salaried workers in industry throughout the country are eager to come to New England because it is so fine a region in which to live and work and raise a family.

This *livability* is Massachusetts' fourth dimension in the field of economic development. And there is truly gracious living in this old Commonwealth of ours, rich in its incomparable heritage of American history and culture — its superior educational facilities, its delightful variety as a vacationland, its warm homeliness.

We commend this important element of *livability* in Massachusetts to industrialists with plant location problems.

Richard Preston, COMMISSIONER
MASSACHUSETTS DEPARTMENT OF COMMERCE
334 Boylston Street, Boston 16
(Copley 7-5600)

Do you really have to move?

Dissatisfaction with some aspect or aspects of a present site does not always result in relocation of a plant. Aside from cases where the dissatisfaction is expressed by an executive who is simply letting off steam to relieve his feelings, there is often a chance to remedy the objectionable situation, if management puts its mind to the task. And at less cost than moving.

The Survey Research Center at the University of Michigan conducted a study of why plants move out of that state, or think of moving out, as well as why they move in. It was done for the Michigan Economic Development Commission and was reported in a booklet, "Industrial Mobility in Michigan," in 1951.

A number of companies told why they'd like to move, but why they hadn't. Suggested to the Commission were efforts to remove the causes of dissatisfaction. One specific recommendation was that the state or its manufacturers seek means of persuading someone to build additional steel producing equipment and steel rolling mills within its boundaries. This would satisfy many of the restless concerns.

In other states, manufacturers have relieved labor shortages by getting state labor department aid in retraining jobless left-behinds of the migrating textile industry for skills in metal working and white collar jobs.

stance, when more than one good applicant came from a small concern, but rejecting them went a long way to establishing good inter-company relations at the start, and applications were numerous enough that Schick could get good people without harming the little employer.

The company also decided in advance to limit itself to a percentage of the employable population of any single village or other community, lest future employment fluctuations create too much hardship in any one community. It needed never to apply this percentage rule, however, since applications came from such a large area and were not lumped in any one geographical source in or around Lancaster.

Recruitment advertisements were not necessary. When a hiring office was opened April 1, 1955, in downtown Lancaster, the applicants began pouring in. Advance publicity started the turnout and word-of-mouth reports kept it up. By the time the plant was staffed with about 800 hourly-paid and 200 salaried workers, 8,000 applicants had

been interviewed and many of them tested.

A detailed program of notification of applicants was worked out to assure as much as possible that the rejected as well as the accepted retained a friendly feeling for the company and appreciated its way of dealing with them.

Part of the preparation was the setting up of new testing procedures: finger dexterity, comprehension of spatial relationships, and a rough intelligence test for most; job tests for the more skilled occupations.

Starting new, the company was able to establish a balanced work-force of old and young employees, experienced and inexperienced, with a fair quota of handicapped workers.

Considerable changes were made possible, too, in production and personnel policies. In Stamford, a long-time incentive-pay plan had become so straitjacketed by years of contract interpretation that, once in Lancaster, the company discarded incentive pay entirely. It inaugurated a measured day work system and timed jobs by the

Take a good look at

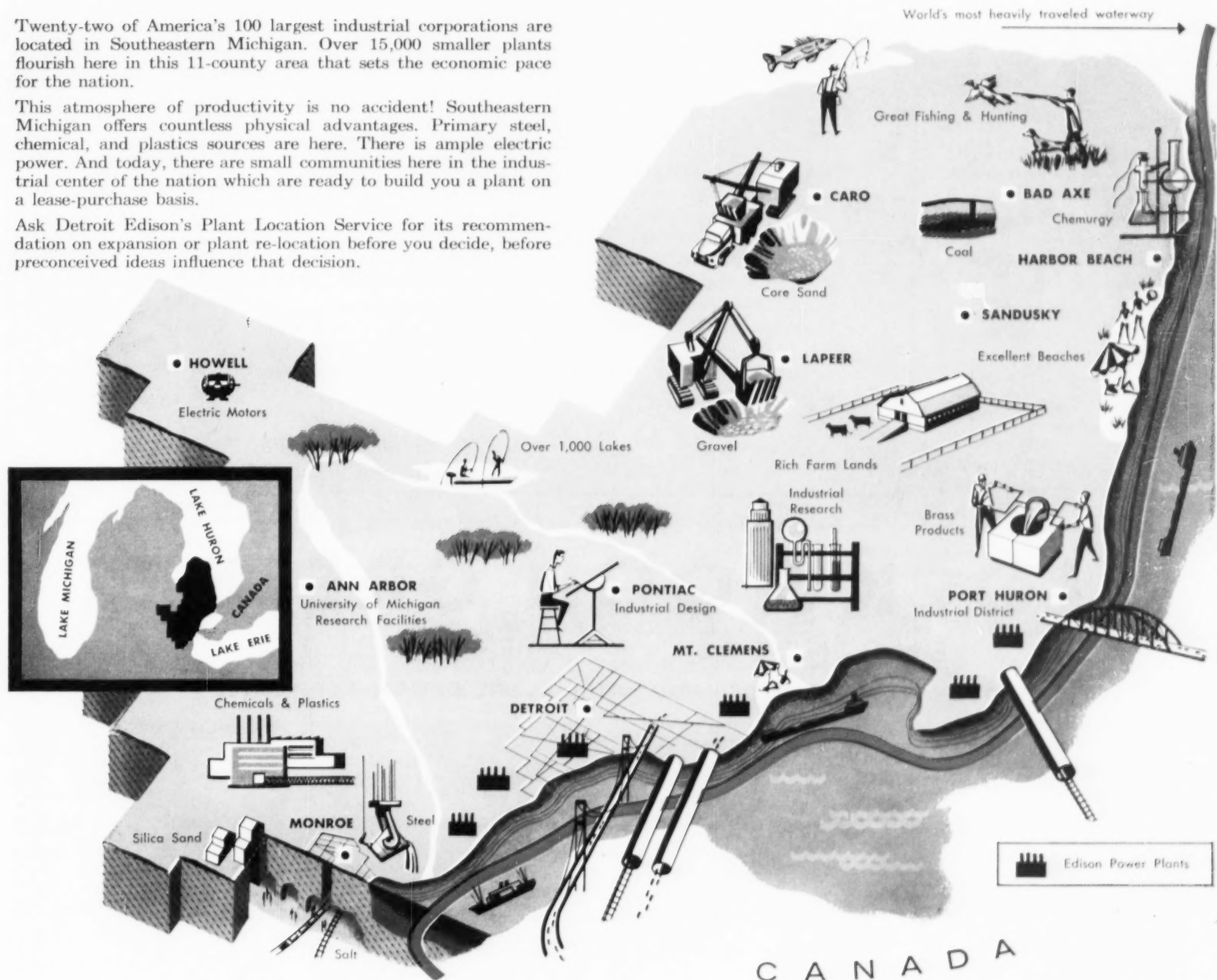
SOUTHEASTERN MICHIGAN

Strategic location for modern industry

Twenty-two of America's 100 largest industrial corporations are located in Southeastern Michigan. Over 15,000 smaller plants flourish here in this 11-county area that sets the economic pace for the nation.

This atmosphere of productivity is no accident! Southeastern Michigan offers countless physical advantages. Primary steel, chemical, and plastics sources are here. There is ample electric power. And today, there are small communities here in the industrial center of the nation which are ready to build you a plant on a lease-purchase basis.

Ask Detroit Edison's Plant Location Service for its recommendation on expansion or plant re-location before you decide, before preconceived ideas influence that decision.



Look at this combination of advantages:

Overnight access to major markets
Neighbor to booming Canada
Available plant buildings
Available manpower:
Skilled and unskilled
High concentration of engineers
Ample fuel:
3 natural gas pipelines
Protective industrial zoning
Raw materials:
Silica sand, salt, limestone, many others

Complementary industries
Ample electric power
Equitable taxation
Unlimited raw water supply
Shipping facilities:
10 major railroads
12 scheduled airlines
Short route to Atlantic ports
Low-cost water transport
St. Lawrence Seaway: 1965
Port of Monroe

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Methods Time Measurement plan—but solely for its own guidance and not as the basis for the pay of the individual worker.

Similarly, free of a union grievance procedure, management did not drop the idea, but streamlined it. A three-step, simplified grievance procedure was installed, with the employee's right of representation assured.

A fairly detailed policy "bluebook" replaced both the labor contract working conditions clauses and the old Stamford shop rules. An indoctrination and orientation program had to be developed and administered as soon as new employees began going on the job in lots of 75 about May 9.

Fitting the new workers into the new policies was easy. "They were enthusiastic about their jobs," Arrowsmith says, "and have demonstrated they mean their enthusiasm by their efficiency."

It was acclimating the supervisors, brought down from Stamford, to the new way of doing things that caused most concern. The fact that they were fed into the new plant over a period of weeks,

rather than all at once, eased the task, and, in fact, they responded successfully to their new responsibilities after a brief interim of hesitation. Each was talked to personally by management on what the differences would be. Chief was the fact that in the old plant, foremen had felt hemmed in by rigid rules of seniority, and so on,

until they felt deprived of any real function.

"It was a little hard to get used to at first," one of them said, six months later, "but it's turned out swell. Here you feel as if you were running a business of your own, almost. You really get a chance to do some managing."

Seniority was not abolished, of

course, but it was modified by what management considers a rule of reason. It now applies strictly only in layoffs and rehires, but is only one of the secondary considerations in promotions and other applications.

Evidence that the company had lived with a union is given in the policy bluebook. Provisions (as for seniority in layoffs) are detailed and precise, where a company that had never been organized might consider general statements adequate proof of its good intentions.

Productivity and quality are both much higher in the new location. Not all of the gain, obviously, can be attributed to careful planning and renovation of personnel policy in the light of old experience and new opportunities. The efficient new plant, new layout, and new equipment, different labor standards and community culture, perhaps even a new model of shaver created with the plant, all share in the credit.

*Winning The New Plant
Community . . . page 83*

The man with the \$1,000,000 thirst

There's an executive in New Jersey with a \$1 million thirst, according to Alston F. Beckmann, industrial real estate man of Teaneck, N. J.

The executive and his colleagues outlined their needs in the way of a new plant and were very happy to find just what they asked for. They committed themselves for a gross outlay of \$1 million over the next ten years, then settled down to getting into production.

First task was to drill wells for the large water supply their process needed—which they'd forgot to include in their site specifications. But state water policy forbade their taking the water there. To-day they are looking for someone to unload their ten-year commitment onto.

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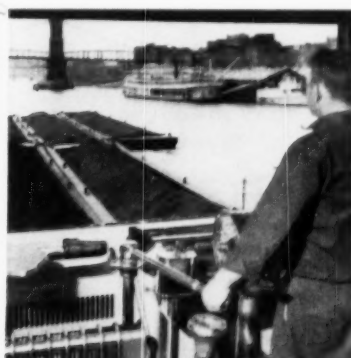
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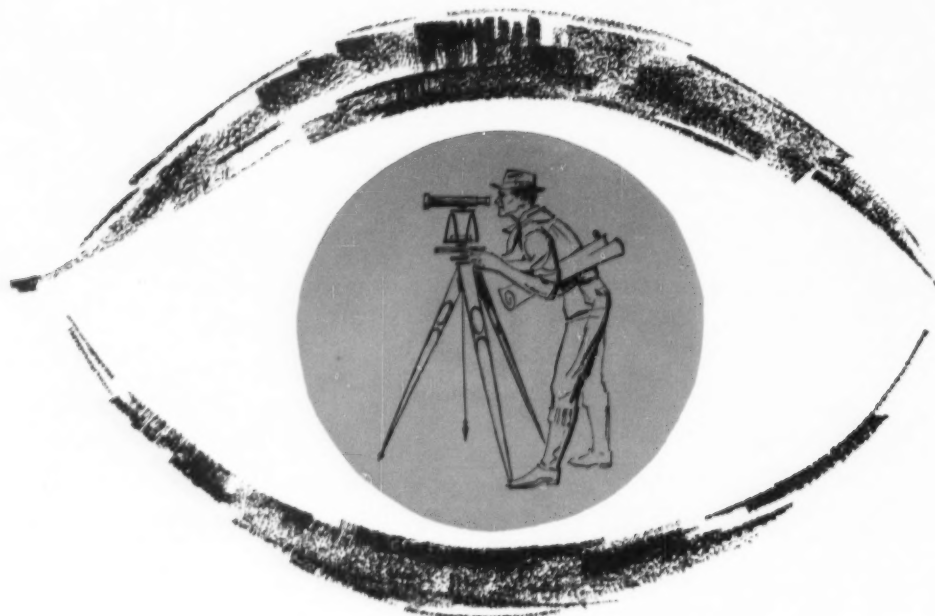
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LOCATION ANALYSIS

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WHEN A PLANT has been in one town for a long time, providing jobs for its citizens and payrolls to keep its merchants in the black, the town often begins to take the benefits for granted and not to appreciate them until the company moves away.

When 100 or 1,000 jobs are taken out of a community, it is easy, suddenly, to see how much they mean to its economic and social life. It is almost as easy to grasp their importance when they are set down in a new community, all in one motion.

This is a break for the company that is relocating or expanding into a new location, and the wonder is that corporations ever have trouble finding the welcome mat. Yet they often do. Many town fathers are as suspicious of a new industrial establishment as a mother is of her daughter's suitors. Sometimes this is because the new company is suffering for the sins of some previous enterprise which proved itself no good neighbor. But sometimes it is because of failure of the new company's community relations planning and a poor approach to the townsfolk.

If the job of locating a site has been properly done—if the right community and the right kind of site for this kind of factory have been picked—management will have the considerable advantage of feeling confident it is in the right in any discussion of the desirability of the operation it plans to open up.

And, when the plant is right for the site, even the objections of some people in the community can be turned into a community relations plus. They give management a good excuse and an opportunity to carry its story to officials

Kids, fish, and the community—

how to make hay in Napoleon

When Harris Products Company of Cleveland moved to Napoleon, Ohio (population 5,300), The Austin Company, which had bird-dogged the site and built the new factory, warned that the site included the town's favorite fish pond. Harris put itself in solid with townsfolk by, among other things, holding children's fishing contest (below) soon after opening; then stocking pond with 1,000 fish, reserving it for anytime use of kids under 16.



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The location for this Charles Bruning Company plant at Teterboro, New Jersey, was chosen on the basis of Fantus analysis.

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of the town, to other individuals, and to clubs and other groups. Candor, patience, and common courtesy should, and usually will, carry the job through from here on.

Except, perhaps, when the plant is to be built in an industrial park, where zoning has been taken care of in advance and transportation and the availability of utility services have been pre-arranged, almost every company moving into a new location will need some deviation or some municipal permission, says Alston F. Beckmann, industrial real estate broker in Bergen County, N.J. It is in making the approach for this aid, Beckmann says, that many companies first stub their toes. He should know: as head of the industrial development department of George H. Beckmann, Inc., he is peppering his suburban area with new plants.

Know who Counts in Town

He stresses the need for someone on the management team, whether executive, staff man, consultant, broker or builder, to know the town and its background thoroughly.

"Often," he says, "things get started wrong because the proposition is sprung as a surprise on some important person, and unless you know the municipality, you may not realize who the key person or key people are. It may be the mayor, it may be the town banker, or maybe an old politician. Sometimes it is simply the building inspector who happens to carry a lot of weight.

"You have to be sure that the key people are talked to first. It is a matter of face for them, and just a matter of common courtesy on the company's part."

Selas Corporation of America, which outgrew a cramped site in Philadelphia and found just what it wanted in the village of Dresher, a few miles out of town, is one company that was able to turn a certain degree of opposition into an advantage.

The township of Upper Dublin, in which Dresher is located, was generally favorable to new industry; it was eager for help in meeting its tax load. But in Dresher itself, where expensive homes give a country club air to the community, there was naturally some concern about a factory moving in.

Factories to many people mean smoke and pollution, constant heavy truck traffic, perhaps an undesirable workforce, maybe even picket lines and strikes.

But Selas' president, F. O. Hess, and his staff had chosen well. The site, shielded from the community by a dropaway of land, needed only a minimum of sage landscaping to make the plant appear, from the fine homes, like a club or better type of public building.

E. L. Fortin, executive vice-president, headed up most of the negotiations, formal and informal, with officials and residents of the township and village. As soon as the site was selected, he met with the Commissioners of Upper Dublin, the local governing body, and explained the operation of the company, what kind of plant it planned to build, and why he thought it would be an addition, not a detriment, to the neighborhood.

Story without Ballyhoo

He gave them, too, a simple, three-page processed prospectus stating as dryly as possible, without adornment or ballyhoo, how old the company is, what it makes, how many it employs, who its customers are, the Office of Defense Mobilization's desire as well as the company's need that it move out of the crowded metropolis, and the kind of employees and where they live.

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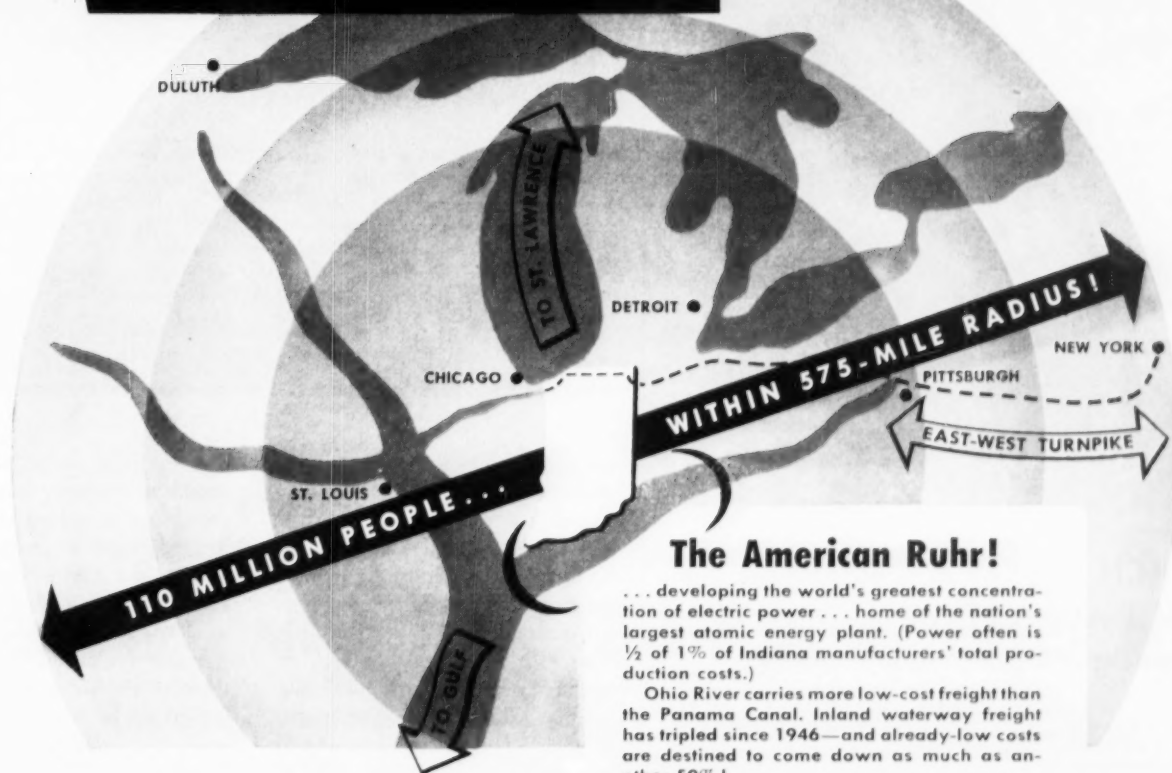
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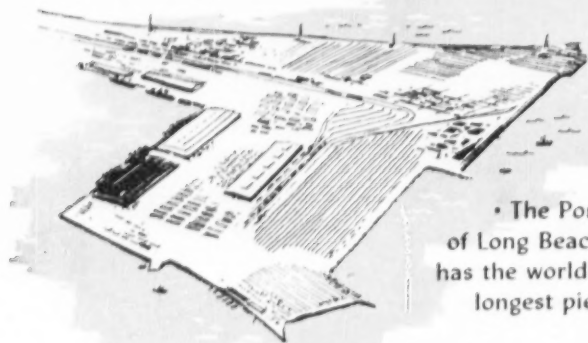
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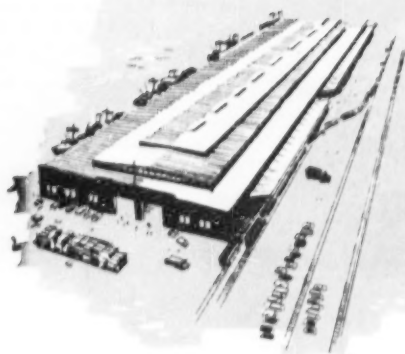
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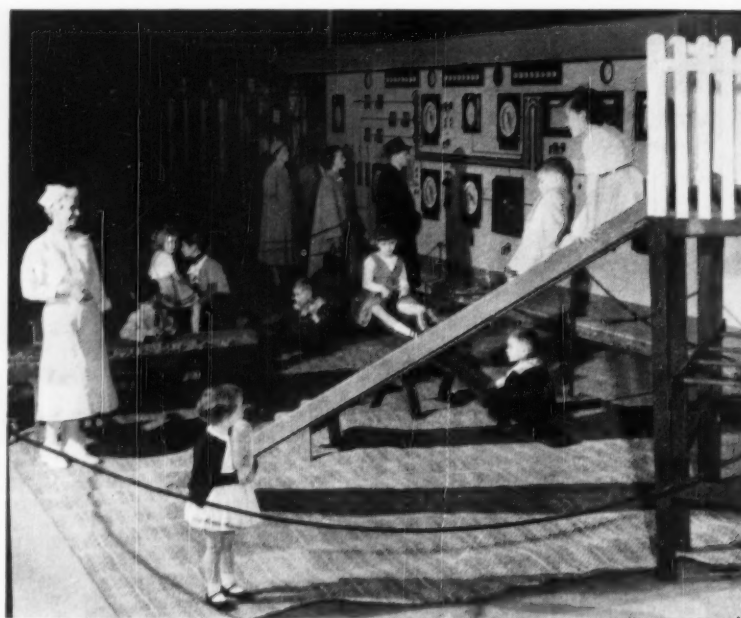
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LONG BEACH, CALIFORNIA



Proof of the popularity's in the playpen

When Selas Corporation of America first proposed to move into rural suburb of Philadelphia (see pages 73 and 84), many neighbors protested. By visiting residents in their homes, presenting case at public hearing, company won assent. Opening day, 1,400 toured plant, 500 of them em-

ployees and families, rest neighbors. Nearby nursery school offered free use of equipment for child-check center. Local high school girls volunteered as baby-sitters. Four hundred young future neighbors got good impression of Selas (above) on first visit during open house.

tion to the Commissioners, vice-president Fortin returned several days later and found his talk had "taken." The land was bought. When Fortin let it be known he was eager to talk to anyone who had questions about the plant, an informal meeting was arranged on the porch of the township building inspector, Carl Maier, a near neighbor to the plant site. A large part of the village's residents showed up, as well as one of the Commissioners.

Other meetings were held with interested groups, as at the school board and in the local post office. Other officers of the company took part in some of the meetings and even talked informally with small groups on the sidewalks around the site, and got calls for information on the phone. This was not a "hard sell," but a sell so soft as hardly to rate the term.

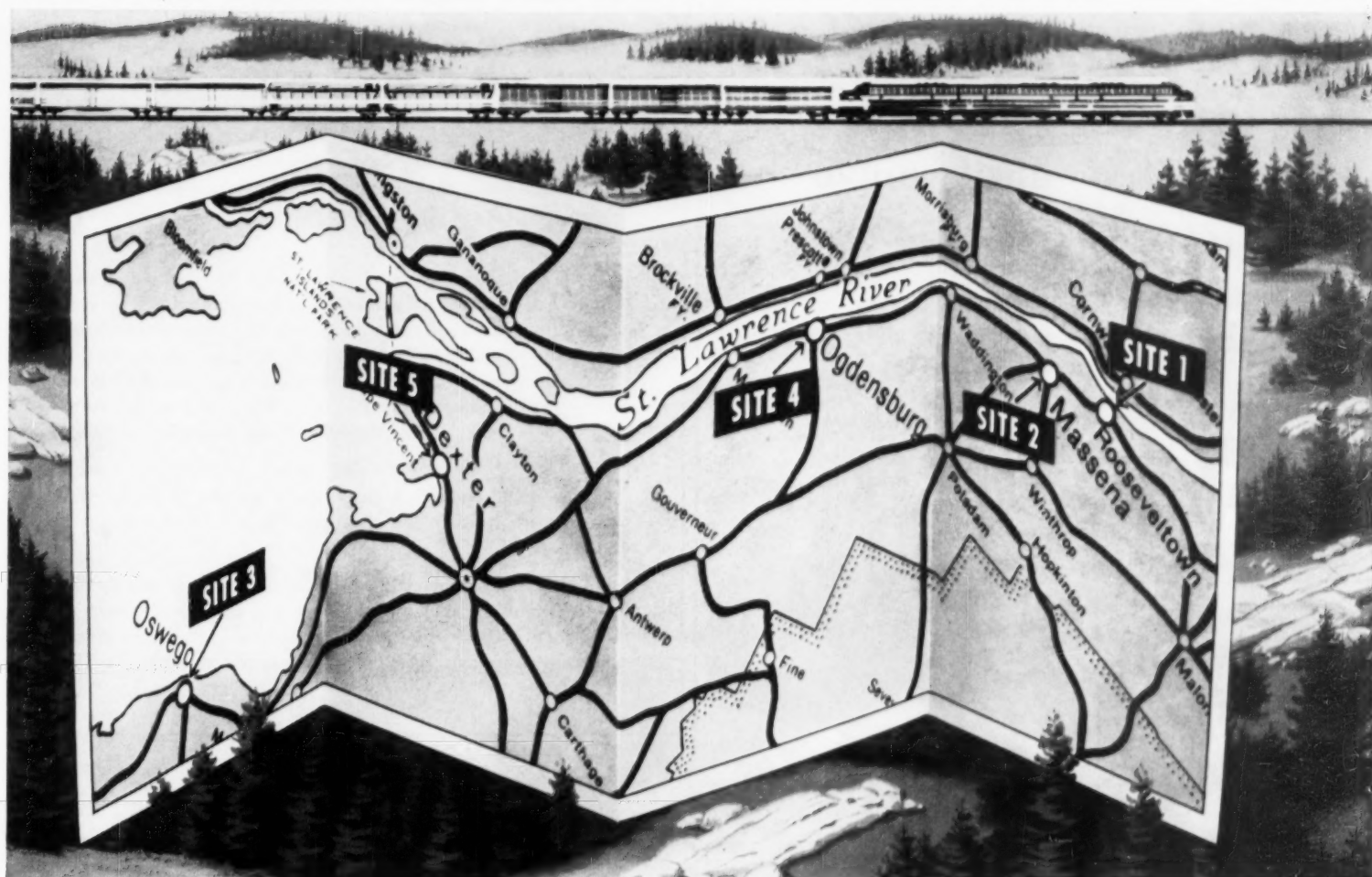
Residents were invited to visit the plant in Philadelphia, to see just what the processes were and to meet the working personnel who would be transferred to the new plant. When, finally, a public hear-

ing was held on Selas' request to rezone its property from high-level residential to industrial use, Fortin had his president, the company's attorney, and the architects, Carroll & Stephenson, on hand to answer any additional questions. There were 100 townsfolk on hand to ask them. A similar panoply of experts turned up for a second hearing on additional deviations and zone changes.

By the time Selas held its Open House, February 18, this year, many of the residents who had first opposed the plant's coming were on hand to welcome plant officials. One couple live directly across the street from the plant.

Selas and Drescher by this time were performing a sort of Alphonse and Gaston act. A local day nursery volunteered use of its kindergarten equipment for a child-check center during the open house. From Upper Dublin High School, teen-age girls were supplied as baby-sitters for children left at home.

And Selas officers, talking now about the residents who opposed



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Plants, like pants, come ready-to-wear

Small companies using light equipment now buy "ready-to-wear" plants when they move into metropolitan suburbs. Like suits in men's stores, they are new, and the seller makes minor alterations to fit them.

About half the new plants that George H. Beckmann Inc., realtors, sell in Bergen County, N.J., have been built by contractors on speculation, as most homes in "developments" are. The contractor builds a one-story shell with roof. When he gets a buyer, he puts in the kind of floors, partitions, finish that the purchaser wants, much as he'll give the buyer of a speculatively-built home a choice of exterior color, inside wall paint or paper, and so on.

For the small operator with no special tooling or engineering problems, it's quicker and cheaper, Alston F. Beckmann says, and just as good.

Another trend in Bergen is the "package deal." A construction firm sells land to companies that hire it to design and construct the factory. It's a sort of one-plant industrial park idea, with the concern making part of its profit from land speculation.

their entry into the community, don't call them "opponents;" they refer to them as "people with a highly intelligent interest, not only in their own community problems, but in the efforts that Selas was making to enter their community with a minimum of disruption and a maximum of mutual benefit." How polite can you get?

Selas' success in reasoning things out with its neighbors-to-be is an example of a new kind of relationship with public officials that light industry, at least, is experiencing as it moves into essentially residential suburbs.

In Westchester County, N.Y., and Bergen County, N.J., for instance, small communities are the rule, and in most of them the mayor and councilmen are more than likely executives of companies in the nearby metropolis, or owners of substantial businesses. They serve their home municipalities free and bring to them a quality of service that is sometimes not found where the town father must make his living out of running the town.

"Their background and the residential character of their towns makes them very fussy beforehand and a little tough to deal with," says Alston Beckmann. "They cannot be

hoodwinked and they don't like soft soap either. They are often pretty big business men themselves.

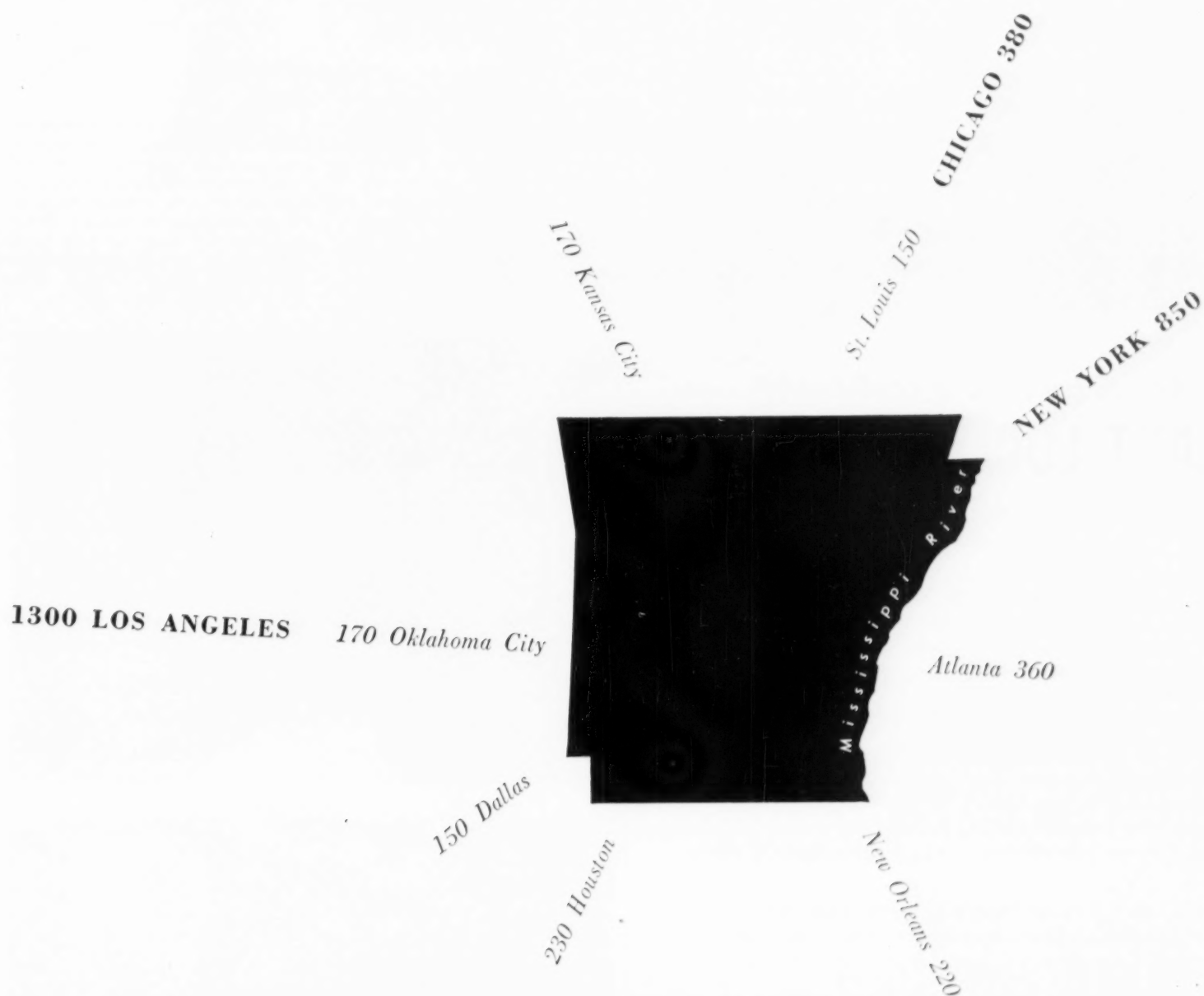
"But once they have accepted your plant, you will find they are much better to get along with than the big city politicians. They and their constituents are more likely to have a business outlook. And one thing is sure, you will never find a hand out for the payoff.

"It may be hard to measure, but this favorable atmosphere has contributed a good deal to the well-being of the industries that have been able to satisfy the towns they would be 'good citizens.'"

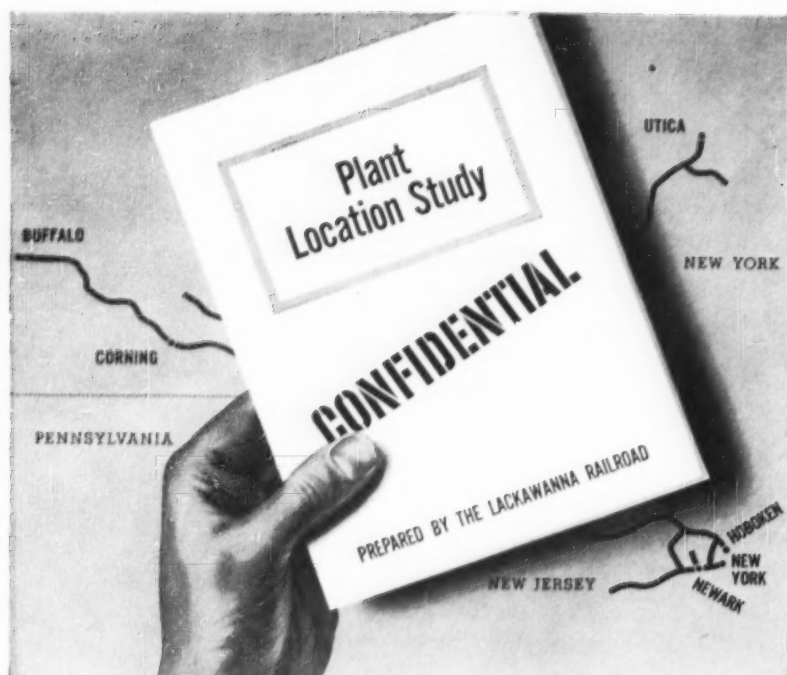
It is little wonder a cautious management often turns to a competent consultant to carry out the site-hunt.

Although one company that moved a big office operation into suburban Westchester County, bringing along a great many of its city employees, is said to have had unhappy experience with school crowding and overtaxing of other municipal facilities—requiring heavy increases in taxes—Beckmann says he knows of no such result in Bergen communities.

For the most part, employees of a company moving from Brooklyn or Manhattan to one of the outlying



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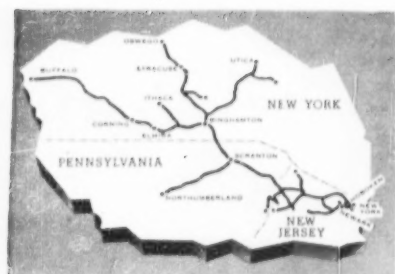
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SHORTEST RAIL ROUTE BETWEEN NEW YORK, BUFFALO AND THE WEST

counties, do not move along with the plant or office, he says. For one thing, their pay level is often not such that they feel they can afford to quit renting and buy a suburban home at to-day's prices; they must stay in the old area, too, because often several members of the family have jobs, and it is not feasible for all to quit and move.

On the other hand, the cost of

the better living conditions in the suburbs tends to create a supply of female help. Young couples setting up housekeeping in a new development, often on the basis of the husband's prospects rather than his current income, are sufficiently pressed for money that a great many wives are always looking for light jobs. Middle class prejudice against wives working is breaking down steadily

Continued on page 95

Town and plant—that way about each other

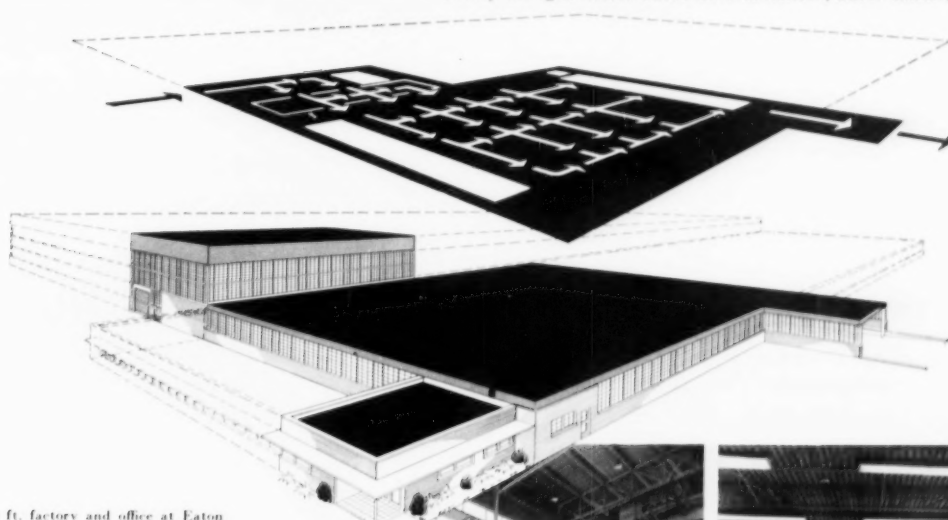
The new plant community doesn't have to be a small town down South for mutual admiration to grow up between it and its new industry. It can be up North, like Napoleon, O., where the Harris Products Company factory provides work for 400. President L. R. Bowers of The Community Bank, for instance, benefits three ways: a new industrial account, ac-

counts of new employees, more money circulating through previous accounts because of plant payrolls. To the company, a prosperous bank was a recommendation for the town, an indication of the stability of its citizenry. When company and town are both good, both prosper. Bowers and Plant Manager Lester Goode exchange visits (below) in bank and plant.



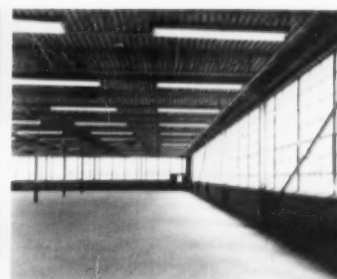
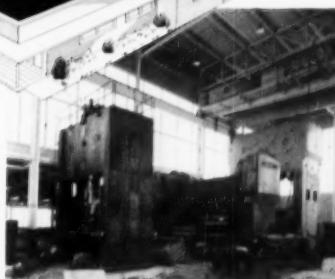


Factory and Office ALLIED PRODUCTS CORPORATION, EATON RAPIDS, MICHIGAN



This 34,000 sq. ft. factory and office at Eaton Rapids, Mich., was planned from the "inside out" not from the "outside in". That is—the walls, roof and floor were built around the most efficient plant layout—with due provision (dotted lines) for the expandability of press room, office, assembly and shipping areas.

It was a "complete package" job. C/L designed, engineered, and constructed it—took full responsibility for the practicality of the blueprints and the "buildability" of the design; for the adaptability of the materials specified and for their application and performance.



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LOCATION ANALYSIS

HOW TO PLAN A FIASCO

It's easy if you overlook people

THERE'S really only one big difficulty about locating or relocating a plant, a warehouse, or any kind of business. That's the fact that, somewhere along the line, it involves people. And, as any human relations director can tell you, people are the darndest things to get along with.

Usually, it's the people outside the corporation that's moving who cause all the difficulties. But sometimes it's the experts inside. And in the real tough-stuff cases, it's both.

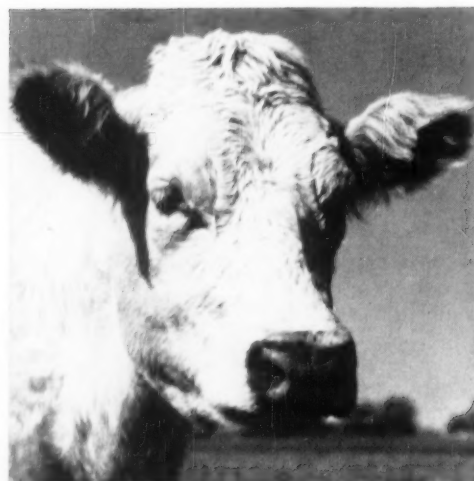
Take, for example, the big corporation—third largest in its field—which picked a good little town to move into, put its Public Relations trumpet to its lips, and let loose with a beautiful blast about how it was going to bring peace and prosperity to this little community.

It might have brought prosperity (no one knows), but it didn't bring peace. The fact is, the corporation hadn't sounded out the town very carefully, and it was shocked to discover it wasn't wanted. So shocked, indeed, that it abandoned its plans to move in and started looking for a new site.

This was where the insiders—the inside experts—got their chance to pull a blooper. They picked a dandy new location, made sure before talking out loud that the local folks would like them, then announced their plans. It was only later, when engineers sunk some test bores, that they found the site would not support the heavy stamping machines they planned to install. Nearest bedrock was somewhere on the China side, and with international relations what they are, no one could risk letting the stampings fall into communist hands.

Latest word is that the company's public relations folk have found a friendly community and that the engineers have discovered bedrock only ten feet down. But the board of directors is still walking warily all around the project wondering where it will spring a leak.

Labor—which is people—get mixed up in plant relocations in other ways, too. For example, one textile company which went South about two years ago to find less costly labor, discovered Southern workers were pushing their wages up so persistently that there was no advantage in staying there. The company moved



HELEN LEE PHOTOGRAPH

"I wonder how many bulldozers they're gonna lose before they realize it's quicksand!"

back to central Pennsylvania completely disenchanted with the lure of short-run gains.

Quite the opposite was the trouble a very technical company in a Northeastern State got into. Most of its employees were key professional people, the kind who have recruiters for other employers camping on their front doorsteps when they get home at night, or snuggling up to them through friends and relatives.

This company wanted to move—picked a dozen tentative sites—then ran a survey among its employees to see how many would move with it. So few would that it abandoned plans to move, after paying considerable sums to seek sites and to survey employees.

But it was too late. Key professional workers, able to get a job by asking for one, had begun quitting in droves, each eager to get the best available job before the company moved and threw a lot of competitors on the market.

To-day, the company is still doing business at its old location, but not so much business, because it's still recruiting its staff back to standard. It has no new plant and it has lost lots of old employees.

The company can get into hot water with the community it is leaving as well as with the one

it transplants to. If you're making an industrial product the public doesn't buy, or even know about, perhaps a little ill-will can be borne, so long as it isn't in the plant town. But the manufacturer of consumer products can't afford to be cavalier.

One maker of a small, day-in-day-out item for men negotiated a contract with the union in his plant which he understood would let him move out of town in an odor of sanctity during the coming year, and perhaps leave the union far behind. He failed, apparently, to consider in his calculations the fact that the union, having nothing more to lose, might not feel too many compunctions about violating the contractual agreement.

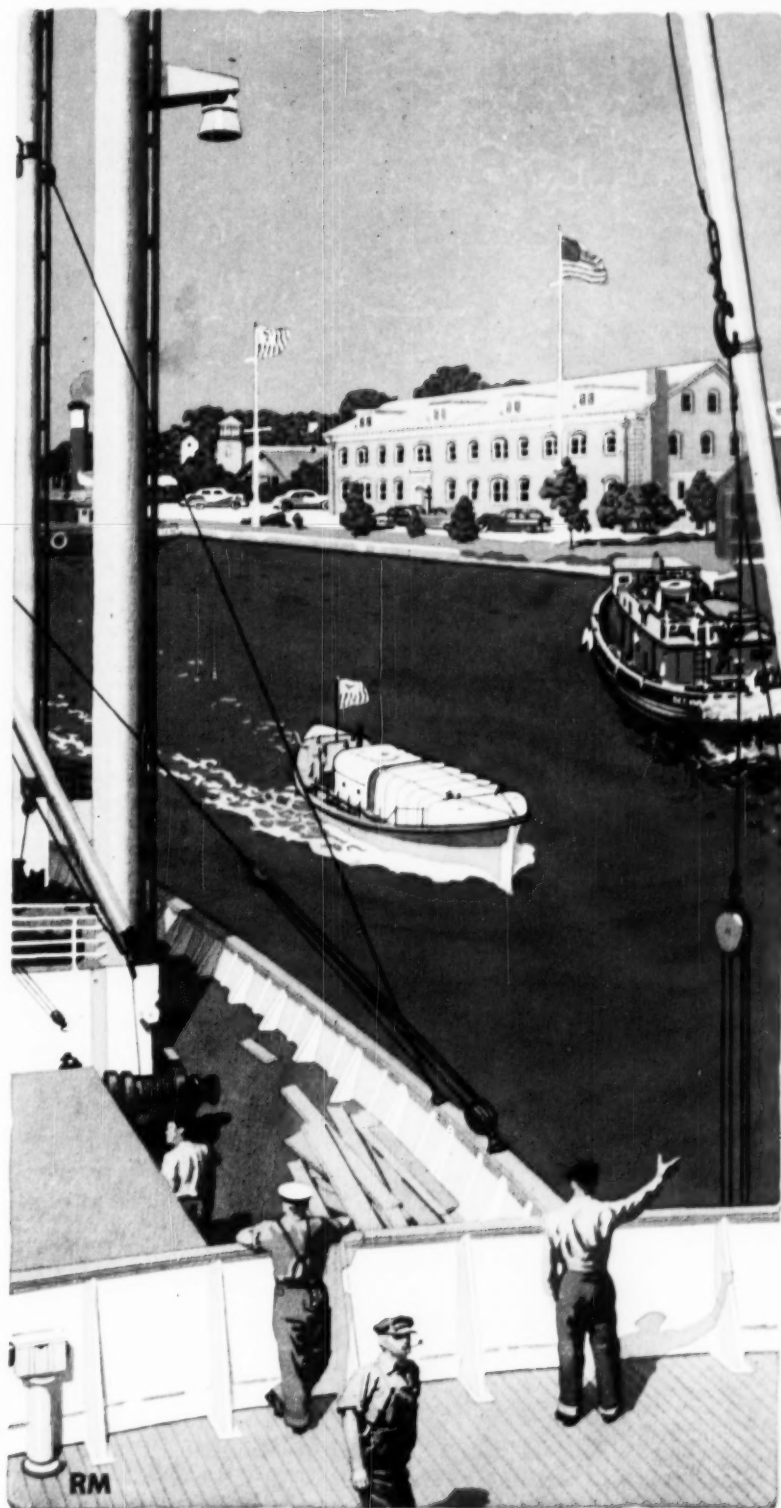
Before the plant could move, employees conducted a sit-in strike. They did not keep the plant in their metropolitan community, nor did they keep their jobs. But they delayed the moving for some time, and they brought a good deal of publicity, that was probably bad in its overall effect, down upon this employer who had to sell to the general public.

In a small northern New Jersey borough, almost exclusively residential, three or four companies in a row have tried unsuccessfully to get permission to operate light industrial services in a community-owned loft. Each one makes the same mistakes and, as a result, fails to get a lease for the property, which would—if they could get it—make a very economical location.

But each applicant has done the same thing—finding the mayor and town council a little cool or standoffish, they have relied upon a political minority to carry the battle for them. And so far the minority has remained a minority, and the loft has remained empty. Probably the prospective lessors have not deliberately picked a minority group to talk for them—they have no doubt simply relied on the ones who have talked loudest and hardest, which is a characteristic of political outs rather than of political ins, who don't have to shout. A little research might have helped the companies a lot.

Perhaps the only moral that can be drawn is that no amount of planning is ever complete until all factors of the human equation have been thoroughly considered.

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THERE'S a beckoning new frontier for industry in the "North Country"... that beautiful part of Upstate New York that lies near the St. Lawrence Seaway.

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You can be sure of *all the electrical power you need* in Upstate New York, at a cost lower than the national average. It's supplied by Niagara Mohawk, which serves over one million Upstate homes, farms and industries. For more facts about your opportunities here, drop a line to Earle J. Machold, President, Niagara Mohawk Power Corporation, Syracuse, N. Y.

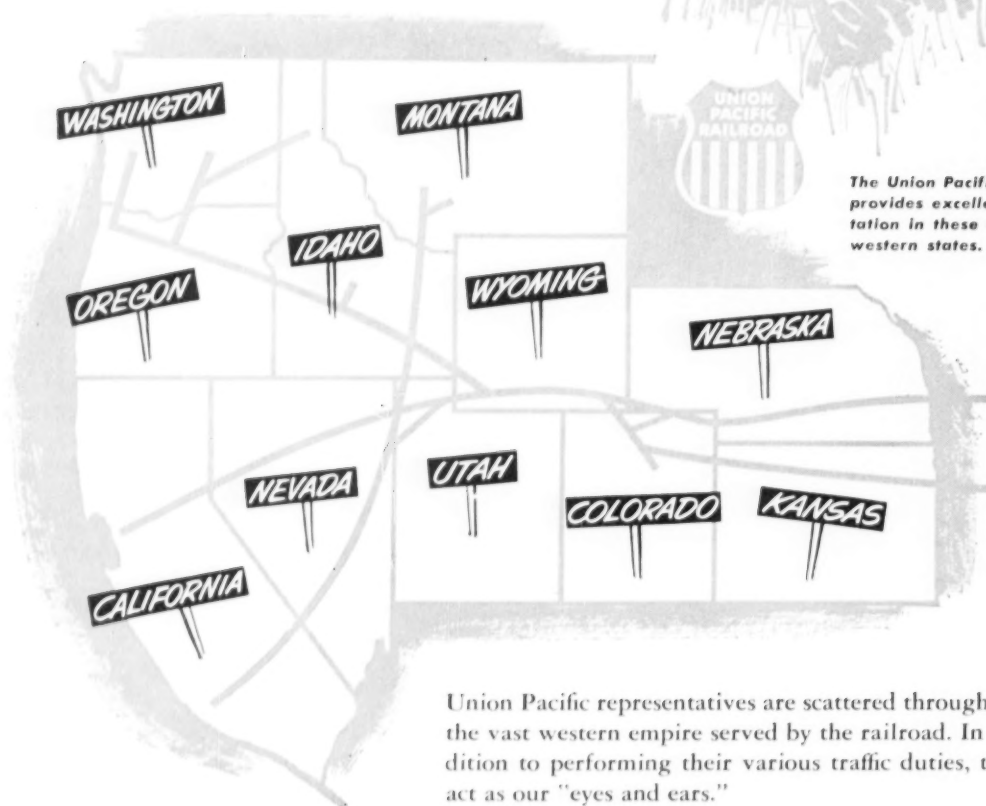
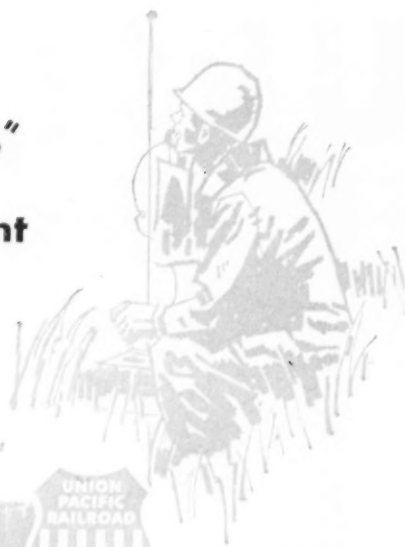


At left is an artist's conception of the St. Lawrence seaway—soon to become a great artery of world trade—as it flows along a new industrial frontier, the "North Country" of New York State.

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This "on the ground" information supplements the wealth of factual data available at U.P. headquarters. We will gladly give you a confidential report on any area shown on the map if you are interested in establishing a western industrial site. Just ask your nearest U.P. representative, or contact—

INDUSTRIAL DEVELOPMENT DEPARTMENT

UNION PACIFIC RAILROAD

Room 393, Omaha 2, Nebraska

under the pressure of financial needs and the attractiveness of newly-built, well-landscaped, pleasant suburban offices and light-industry plants.

The automobile the family has had to buy, in order to be able to live in the suburbs, gets an extra workout—indeed, is sometimes paid for—in taking the wife to a job in a plant that has 50 per cent of its plot devoted to parking space.

New Kind of Workforce

Existence of fast new freeways and turnpikes has helped companies moving out from the heart of a big city to draw employees from much larger areas—and therefore get better selection—than was possible where only city transit lines could move workers to and from the plant. A man can come 20 miles from a home in the next county in the time it would take him to cross Manhattan at midtown, and the same is true in the vicinity of many other large cities.

Ford Motor Company, which last year moved a 2900-employee assembly operation from an outmoded plant in Edgewater, N.J., to a new one in Mahwah, N.J., which will

use 5,000 on two shifts, it ran into another kind of community problem which required tact in handling.

"From the outset," says John E. Sattler, New York public relations manager for Ford, "we mapped a long range community relations program that involved full acceptance of our responsibilities and obligations in the area as they developed, and avoidance of many efforts and attempts to involve the company in factional, political, and intra-community disputes and differences which had existed for years prior to any decision on the part of Ford to move into the area.

"Because we were a big organization moving into a community that had had little or no industry therefore, it was only natural that some individuals and groups in the area would try to take advantage of opportunities to involve the company in community matters that at that time were not its concern and could only lead to charges of interference and meddling.

"We indicated from the outset our full intention of assuming an increasing degree of responsibility as a so-called industrial citizen of the area, but we made it clear that

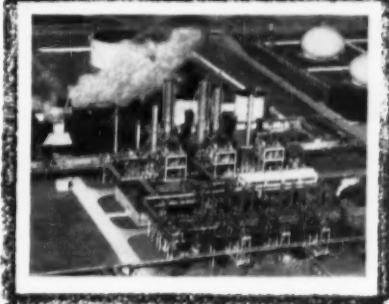
DESIGNS FOR PROFIT...BY KULJIAN



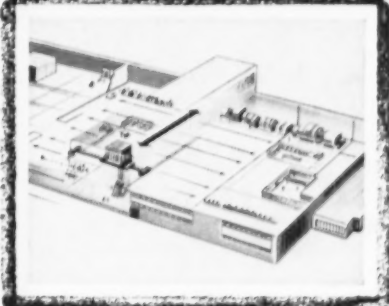
POWER. Ford's Rouge Plant gets another boost in steam generation. The new units, each capable of producing 600,000 lbs. per hr., make highly efficient use of blast furnace gas as well as other fuels. Modernization of the world-famous industrial power plant, including boiler replacement, was accomplished without disruption of service.



AVIATION. The world's largest repair and maintenance hangar—exceeding 1,000,000 sq. ft.—for U.S. Air Force, A.M.C. at Kelly A.F.B., Texas, is designed for processing even the heaviest bombers on a production line basis. Kuljian services are also available to Manufacturers, Airlines, Airports and Fixed Base Operators.



REFINERIES. Sun Oil Company's \$15,000,000 petrochemical plant at Marcus Hook, Pa., covers 20 acres. Designed capacity in excess of 50,000,000 gallons of petrochemicals annually. Kuljian cooperated with Sun Oil engineers to design the pre-fractionation and catalytic reforming sections.



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the company could take only a limited part in community activities until such time as it actually became an active and accepted part of the community."

Ford had plenty of opportunity to make its point. It was more than two years from the decision to move until the actual move, and during that period company representatives appeared on invitation before countless organizations in northern New Jersey and lower New York State to explain and discuss the transfer and its meaning in terms of economic growth and development of the area.

Spokesmen were officials of the Edgewater plant who would be in charge in Mahway when operations started there. For two months before the actual opening, there was a stepped-up program, which included luncheons near the plant and specialized talks for special-interest groups, starting with community officials and civic leaders. A tour of the plant followed. Groups ranged from 60 to 300 in size, and from service clubs to the Police Chiefs' Association. Editors were the last group, two weeks before opening. Besides advance releases, the company sent out day-to-day factual and feature stories when the transfer was actually under way.

Well Placed for Employees

One incidental feature of the move, which may not have played too great a part in the choice of site but helped in employee relations, was the fact that the new plant was about the same distance from most employees' homes as the old one had been, but in the opposite direction. All but ten employees moved with their jobs.

Ditto, Inc., office equipment manufacturers, planning a move from Chicago to a nearby suburb, took advantage of several years' fore-knowledge to create a similar situation. Whenever it hired new people during the interim, it gave preference to those whose homes lay between the old plants and the new one in the outskirts. Thus there was little disruption when the move began to be made, piecemeal, this year.

As in all cases where problems have been met, and turned to advantage, the big factor was careful, detailed planning.

What Questions to Ask at the Last Hurdle . . . page 98

Serving the
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Designed—Engineered and Constructed by

MONTHLY PROGRESS REPORT

April 1, 1956

To: Engineering Department

Contract 3327

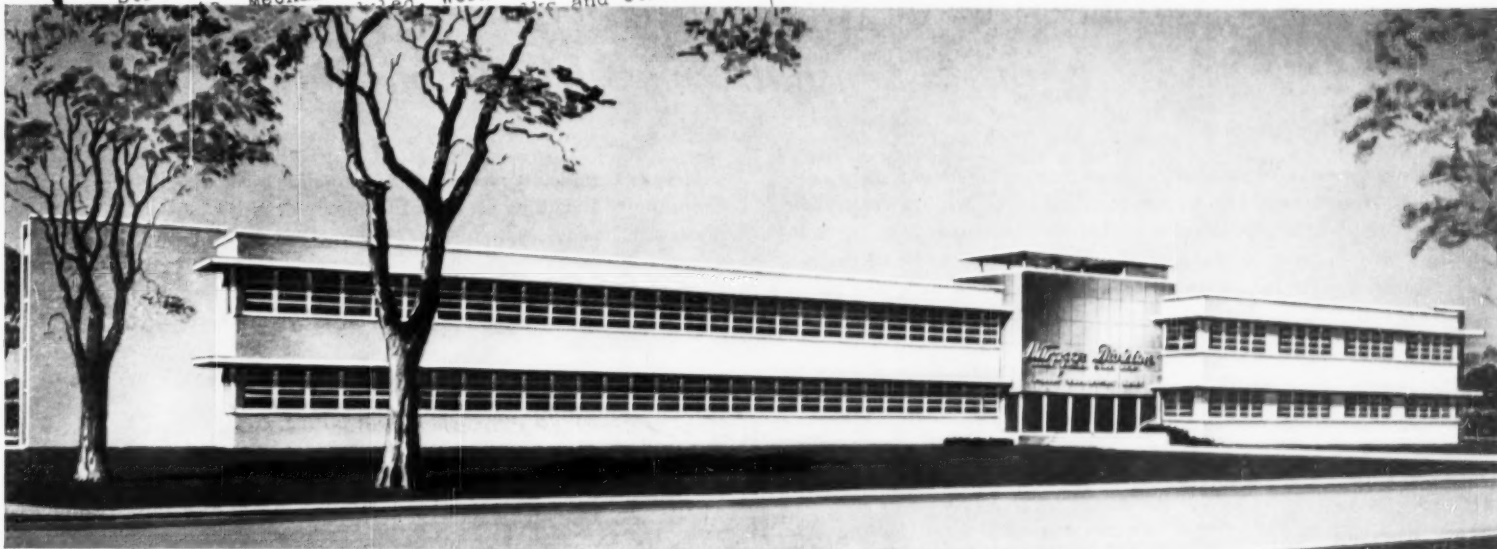
Site was visited and carefully examined in order to determine possible construction problems, availability of utilities, railroad sidings, soil bearing values and local labor conditions. Report to be ready next week.

Contract 3346

Structural work on this building substantial. Mechanical and electrical work completed. Work on exterior and other

Wigton-Abbott

CORPORATION



Contract 3115
Complete except for closing out of
work which is in progress.

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CONSTRUCTION DEPARTMENT

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ginia, 40,000 square feet of space housing
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Est.
1924



LOCATION ANALYSIS

USE THIS CHART TO COMPARE COMMUNITIES AS FUTURE SITES

*GE's question guide will help you over
the last, usually most treacherous step.*

Most companies do an adequate job of narrowing down the Continental U. S. to an area of two to five hundred miles, within which their new plant should be located. Most blunders are made in comparing communities, partly because so much of the data is bound to be intangible, partly because specific local data are not always easy to find, and partly because the company executive does not know what questions to ask.

Here is a guide adapted from an appraisal form designed by the Plant Community Relations Service of General Electric where it is used to appraise the business climate of existing plant communities. Management answers the questions on the basis of "Good (G), Bad (B), or Doubtful (D)." The questions serve equally well as a starter list for management's choosing between towns for a potential site, when each meets basic needs.

COMMUNITY PROGRESSIVENESS

(A) Healthy, Balanced Growth

Are present efforts to attract new industry consistent with community needs and orderly growth in terms of:

- Labor supply?
- Available plant sites?
- Municipal and utility services?

Do population trends in the community provide for a balanced distribution of age groups? For example, is there a tendency for the younger people to leave the community or other conditions creating an imbalance?

Is the community well diversified industrially?

Is the community's economy well balanced with respect to manufacturing, commerce, services?

Are the community's industries dynamic and growing or are they static and declining?

What effort is the state making to attract new industry?

Are state officials facing up to facts as how the state really compares with other states on important issues affecting the business climate?

Does the state offer special inducements to new industry which may work a hardship on industry already located in the state?

Does the state have a development commission which is just as interested in improving the business climate as it is in promoting the state?

Ten years from now, will your business and the community be compatible?

(B) City Planning

Does the community have a financially realistic long-range program for improvement?

Are streets and highways clean, paved, and well-planned for future growth?

Does the city have an intelligent, far-sighted approach to residential and industrial zoning?

Are there annexation problems which might create community growth problems for your business?

Is the general appearance of the community pleasant and attractive as a place to live and work?

(C) Business Sponsored Groups

Does the community have one or more active, well supported business sponsored organizations which have accomplished tangible results toward improving the business climate?

Will they be able to deliver in the future?

Are all segments of the community's industry and commerce represented in these organizations?

If the community has more than one business sponsored group, is there needless duplication of effort, or petty jealousies that sometimes appear under such circumstances?

Are the local business sponsored organizations under the direction of competent and appropriately paid people in terms of the results expected?

(D) Housing, Land Development

Are there enough houses for present needs: to rent? to buy?

Are building and land development costs such that they will enhance or retard the community?

Is there provision for slum clearance and rehabilitation?
If so, will it be done without state or Federal aid?

(E) Economic, Political Understanding

Do the citizens generally display political awareness?
Did more than 35 per cent of the voters go to the polls in the last municipal election?
Did more than 75 per cent of the voters go to the polls in the last national election?
Is a constant employer effort being made to improve the level of economic understanding in the community?
Does a safe majority of the community's citizens understand the importance of the profitability and growth of local industry to their own welfare?
Is an undistorted, easy-to-understand, explanation of how our business system operates being given to the youth of the community—in schools—in youth organizations—in such activities as Junior Achievement?
What constructive groups, devoted to good government, are active in the community?

GOVERNMENT

(A) Administration

How would you rate the local administration in terms of the following:
Financial condition?
Honesty?
Efficiency?
Attitude toward business?
How would you rate the state administration in terms of the above points?
What is the attitude of the State Department of Labor toward business?
Are salaries for state and local offices adequate to attract good people?
Does a political boss run the town?

(B) Legislation

How do existing regulations with respect to industrial noise, smoke, odors, waste disposal, and so on affect business?
What is the effect of zoning laws on employers and business? ...
Are building codes restrictive and outmoded?
Does the state have an FEPC law which contains impractical features?
Are there needlessly restrictive state highway or transportation laws?
Is it customary for the state legislative body to be a rubber stamp for the party in power?
Is there a state right-to-work law?
Does the state have a "Little Wagner Act" or other labor laws which put employers at a disadvantage with employers in other states?
Do the state laws regulating pay and hours put employers at a disadvantage with employers in other states?
Does your state have laws restricting the use of injunctions to prevent unreasonable union acts?
Do state professional and occupational licensing laws restrict optimum use of your engineering and technical manpower?

Are state industrial health and safety laws practical and reasonable?
Are there other regulatory laws which are costly or burdensome to business?

(C) Taxation

How do corporate taxes in the state compare with other states?
What is the outlook for increases in state corporate taxes?
How do personal taxes for the state compare with other states?
Are township or city taxes reasonable?
Is industrial property fairly assessed?
How does your community compare taxwise and financially with communities where your competitors are now located?
Are county taxes reasonable and industrial property fairly assessed?
Is the corporate share of school taxes reasonable and fair?
Are school taxes likely to be increased substantially to catch up with neglected needs?
Do employers pay a tax on payrolls, or is there sentiment for such a tax?
Is there a city personal income tax?
Is there a local machinery and inventory tax?
Are there other special taxes peculiar to the community which handicap local employers?
Is there any contemplated large expansion of city facilities which will affect tax rates substantially?

(D) Law Enforcement

Are local courts impartially fair?
Does the state provide protection in law enforcement when needed locally?
Are the state courts loath to enjoin illegal strikes or picketing? ...
Does political expediency sometimes determine enforcement of laws affecting business?

LABOR RELATIONS

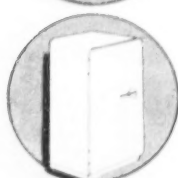
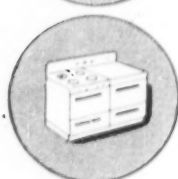
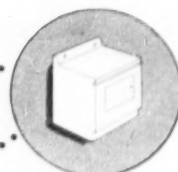
(A) Labor History

What is the strike history of the community? How many work stoppages occurred last year?
How many man-days were lost because of work stoppages last year, and what is the trend in this respect?
Do jurisdictional disputes occur frequently?
If the community has been highly unionized over the years, have these unions been representative of the more radical segments of organized labor?
Have there been frequent disputes in the community between unions and employers over how jobs should be classified: e.g., whether a job should be limited to male or female employees?
Has the community been dominated by one union over a period of time?

(B) Union Administration

Are local union officials anti-business?
What effect have local unions had on employee effort?
Are local labor officials governed by the sentiment and wishes

'PROVING GROUND' FOR THE APPLIANCE INDUSTRY

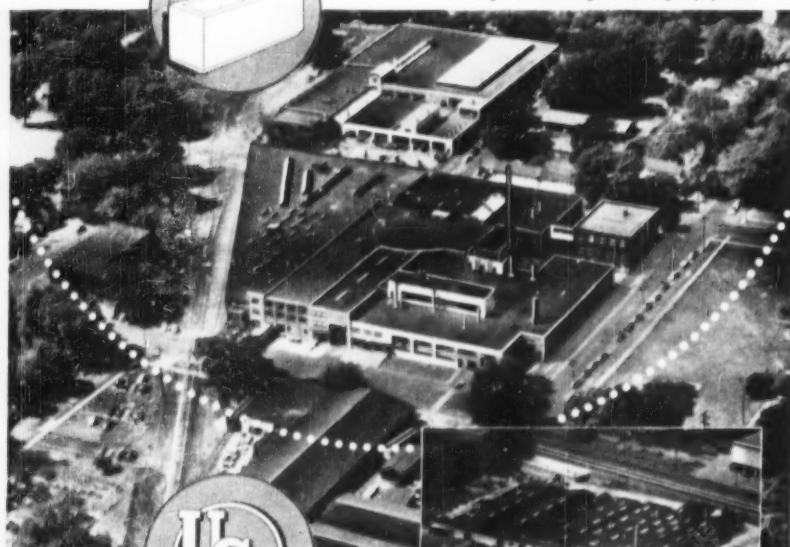


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Freezer Baskets



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Oven Heating Element Frames



Swing-out Refrigerator Baskets

of their local membership, or do they follow the dictates of their national or international officers?

Do local union officials tend to act on the basis of logic or on the basis of emotion?

Where employees are organized, is there wide participation on the part of all employees represented by the bargaining unit, or does a minority determine union policy and action?

(C) Local Practises

Are union shop contracts accepted practise?

Is it customary for employees in the community to insist on working only within closely restricted occupations or crafts?

Are featherbedding practises prevalent?

Is it customary in the community for union stewards to enjoy special privileges not given other employees, or time away from their jobs for union business other than provided for through grievance meetings or bargaining sessions?

When making plant lay-offs, is it customary among local employers to follow a straight seniority rule?

Is there a local union council or similar unifying labor influence?

Do secondary boycott practises by local unions hinder business and industrial operations?

Is there good co-operation among employers in regard to the exchange of union contracts and other union agreements?

PEOPLE

(A) Supply

Is the supply of labor adequate and qualified for your requirements?

Is it adequate for all other employers?

What per cent of the community's labor force is unemployed?

Is there an imbalance of labor requirements so that certain types of employees are difficult to find while other types are plentiful?

Is the labor force predominantly of one sex?

Does this necessarily mean that the opposite sex is available for work?

Are there wide seasonal variations in the supply of labor?

What percentage of the local high school graduates continue to live in the community?

(B) Attitudes

How do the labor turnover rates in the community compare with national averages for similar industries?

How does employee effort compare with communities where competitors are located?

To what extent do employees in the community abuse special privileges such as coffee breaks, wash-up time, and so on?

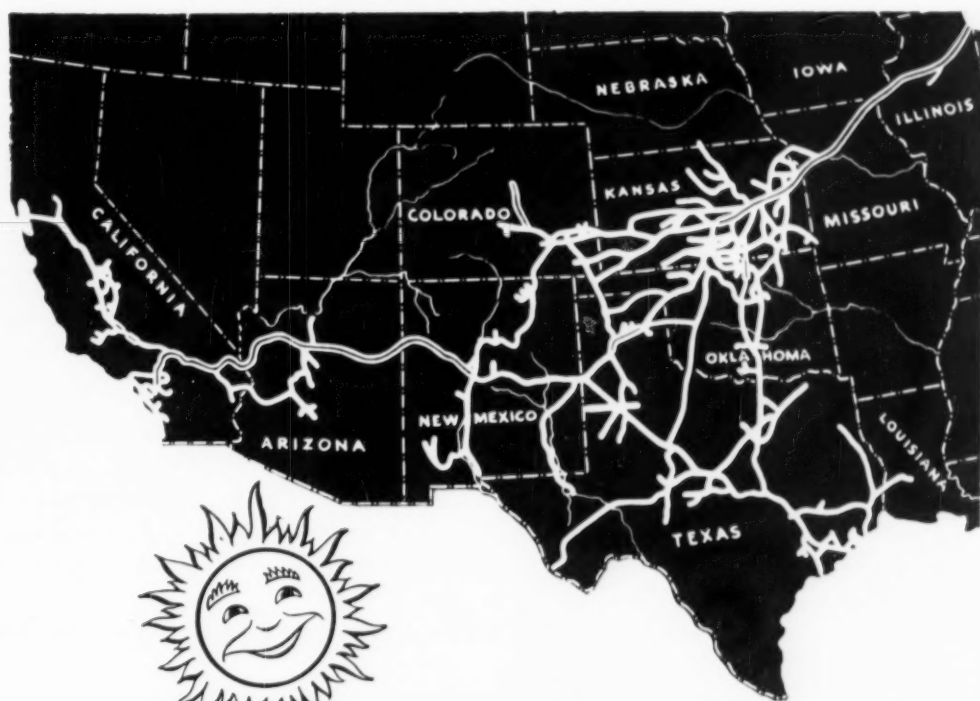
Are good housekeeping practises and responsibility for the care of tools and machinery readily accepted by employees?

How do local industrial accident rates compare with other communities and the national averages on an industry-by-industry basis?

What is the attitude of the work force to changes in piece work prices resulting from increased mechanization?

Has resistance resulted in the general acceptance of obsolete, piece-work prices in the community?

Checkchart continues on page 102



For vital facts on

Plant Sites

along the Santa Fe

The above map shows how Santa Fe lines serve the west and southwest. There are many fine plant sites on, or adjacent to the Santa Fe right-of-way in this fast-growing area that may fit your needs for industrial development.

Clip and mail coupon below for up-to-date facts about plant sites served by Santa Fe.



SANTA FE INDUSTRIAL DEPT.
80 E. JACKSON BLVD., CHICAGO 4.

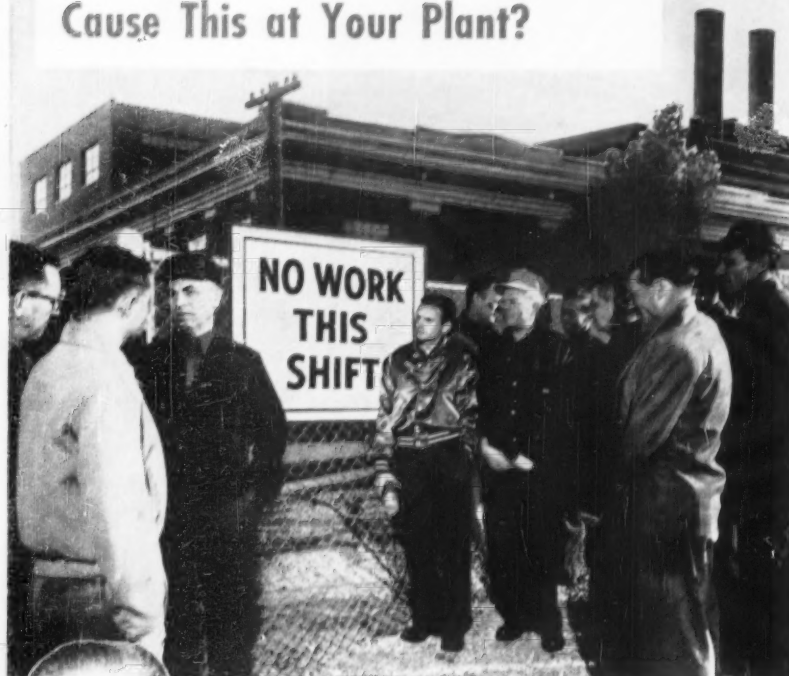
Please send me, at no obligation, facts about plant sites along the Santa Fe.

Name _____

Firm's Name _____

Business Address _____

Does Interruptible Gas Contract Cause This at Your Plant?



"Now is the time to prepare for next and future winters."

"Maybe your production has never been stopped by a gas curtailment. But companies like yours lose thousands of dollars every year during cold weather because of interruptible fuel contracts. You know how much even a one-day shutdown could cost your plant. Can you afford to risk such production losses?"

"Now is the time to install a standby Skellyfuel LP-Gas system that can give you positive protection against interruptible gas contract fuel curtailment. Many companies report their Skellyfuel installations have paid for themselves with the savings from as little as a few days use."

"No adjustment to your present gas combustion equipment is required with a custom-designed Skellyfuel system. When curtailment hits, you can switch over to Skellyfuel instantly. And because Skellyfuel has pioneered in commercial LP-Gas research and quality-control for over 25 years, you can be sure that Skellyfuel is pure, moisture-free, and clean-burning."

"You can forget installation worries, too, when Skellyfuel construction engineers take over the installation of your propane-butane system. Skellyfuel's Industrial Service assumes all responsibility—from survey and plans to actual construction. And Skellyfuel engineers completely train your personnel in the operation of the equipment."

"Why not look into the low cost of a Skellyfuel standby or prime fuel supply installation for your plant? The complete story of Skellyfuel's high quality, dependable service and superior installations is yours for the asking. Just write for our free 20-page color booklet."



Skellyfuel

SKELLY OIL COMPANY

Industrial Division

605 West 47th Street • Kansas City 41, Missouri

Is there evidence of unreasonable employee resistance to technological improvements?

How would you describe the community's attitude toward unions and employers?

Do juries in the state and local courts reflect favorable or unfavorable public attitudes toward business?

(C) Health

How does the annual death rate per 10,000 population compare with that of the state or of the nation (90.0)?

(D) Education, Skill, Training

How does the percentage of high school graduates among adults of at least 25 years of age compare with the national figure of 36 per cent?

How does the per cent of 16- and 17-year-olds currently attending school compare with the national figure of 80 per cent?

How does the percentage of managers, officials, and proprietors in relation to the total population compare with the national figure of 4 per cent?

What percentage of the community work force is employed in manufacturing industries?

(E) Social Characteristics, Mores

Are there restrictions in making job assignments due to racial or other differences?

Is there adequate financial support by individuals of community social and welfare agencies?

Are per capita contributions to such agencies (Community Chest) increasing in the community?

How does the incidence of burglaries compare with the national annual rate of 35 per 10,000 population?

How does the incidence of murders compare with the national rate of 1 per 20,000 population?

How do the average annual wages of production compare with those of the state and of the nation?

What percentage of the community attends church regularly?

Is a stranger from a different geographical location readily accepted into the community?

LABOR COSTS

(A) Wages

Are the wage rates for your job classifications higher or lower than in communities where your competitors are now located?

Are wage rates in the community generally higher or lower than the wage rates in other comparable communities?

Do existing local practises in the community hinder the use of wage payment methods best suited to your business?

What is the prevailing wage rate practise: day work rate or incentive rates?

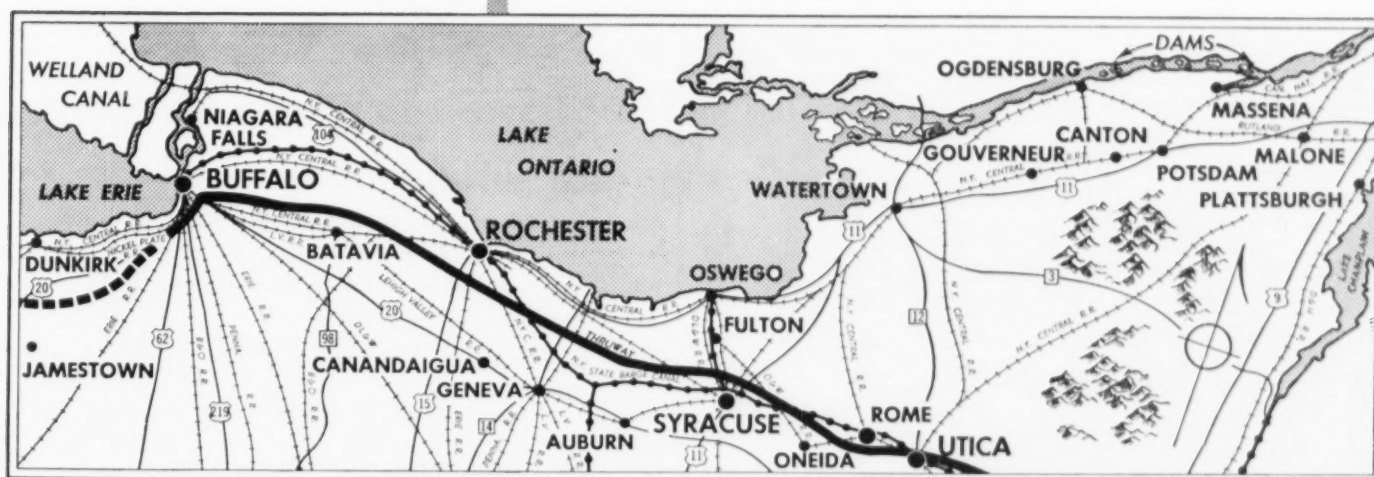
(B) Benefits

Are your extra benefit costs higher or lower than in communities where your competitors are now located?

Are extra benefit costs in the community generally higher or lower than in other comparable communities?

How does the Workmen's Compensation Law in the state compare with other states?

Checkchart continues on page 104



READY NOW... first complete data on PLANT SITE LOCATIONS in New York State's SEAWAY LAND

Ready to serve you...

NEW YORK STATE'S INDUSTRIAL LOCATION SERVICE

Our Industrial Location Service stands ready to give you the Seaway Land facts on which you can make a fully-informed selection of the right location for your individual plant.

The data we submit is gathered, organized and interpreted for your particular benefit by a staff of experts. It costs you nothing... a free service of the State of New York.

To get your free copy of our booklet—"Industrial Location Services"—write New York State Department of Commerce, Room 390, 112 State St., Albany 7, N. Y.

FOR the first time, detailed plant site data is now available covering the Nation's newest and most promising industrial frontier—New York State's Seaway Land. Created by the St. Lawrence navigation and power projects... Seaway Land comprises an area that pulses with opportunity.

Within three years, completion of the Seaway navigation project will give to New York State's many Seaway ports—and the areas they serve—the ready and economical access to the world's raw materials and the world's markets. Trade routes to the seven seas will connect, in Seaway Land, with the great and smoothly efficient system of railroad, highway, air and inland waterway facilities already functioning in New York State.

The St. Lawrence power project now being built by the New York State Power Authority will be the largest hydroelectric power installation east of the Mississippi. Its power will start flowing in 1958. And the expansion of Niagara power in the near future will add more new power than that generated by the St. Lawrence. Add to these the constantly growing generating capacity of the private utilities, and Seaway Land becomes the nation's power center.

This, then, is the time to examine this area with an eye to your particular requirements. Our industrial location experts are prepared to recommend specific sites in Seaway Land to meet your manufacturing and marketing requirements.

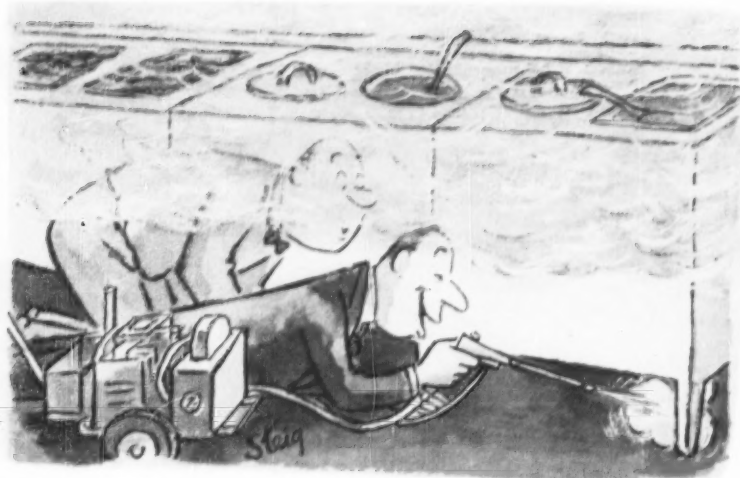
SUCCESS BEGETS SUCCESS

NEW YORK STATE

Averell Harriman
Governor

Edward T. Dickinson
Commissioner of Commerce





"Insects can't escape SUPER MIST-O-RIZER's fog or spray!"

No remote crack or crevice is inaccessible.

WEST's portable SUPER MIST-O-RIZER goes everywhere! It either fogs or sprays VAPOSECTOR, WEST's highly concentrated insecticide. Coverage is amazing.

In fogging, one three gallon filling with VAPOSECTOR controls:

- flying insects in 400,000 cu. ft. of space.
- crawling insects in 200,000 cu. ft. of space.

NO waste! WEST's SUPER MIST-O-RIZER atomizes VAPOSECTOR into uniform 8 micron-sized particles. Creates a "dry mist" that doesn't wet or condense on surfaces.

And in contact spraying, 12 feet of air hose attached to the hand sprayer provide easy access to hard-to-reach areas.

LET a WEST Specialist demonstrate the insect killing power of SUPER MIST-O-RIZER and VAPOSECTOR which is safe to use as directed around foodstuffs. Or ask about our complete program of insect control, including everything from tailormade permanent installations to small hand operated units. Just write, or call your local WEST office.

OLDEST AND LARGEST COMPANY
OF ITS KIND IN THE WORLD



Branches in Principal Cities

FREE BOOKLET

Use your business letterhead to request our 32-page booklet, "Industrial Insect Control."

WEST DISINFECTING COMPANY
Dept. 1, 42-16 West St.
Long Island City 1, N. Y.



In Canada: 5621-23 Casgrain Avenue, Montreal

How does the Unemployment Compensation Law in the state compare with other states? Is the law administered loosely or fairly?

Does the State Unemployment Compensation Law permit payments to employees on strike, employees who have voluntarily quit, employees who have been discharged for misconduct, or because of pregnancy?

(C) Special Influences

Are local employers subject to constant pressure from one or more high "pace setters"?

What effect do "national rate" companies have on the wage rate structure in the community?

Do large government installations in the area influence wage rates?

Are any such installations under consideration?

(D) Other Considerations

Based on present wage and benefit trends, what is the five year outlook?

Considering the importance of real wages, how does the cost of living compare with comparable communities in the area? ...

COMMUNITY SERVICES AND FACILITIES

(A) Business Services

Are the local sources of supplies for plant operations adequate considering the size of the community?

Does the community have adequate hotels, restaurants, meeting and exhibit facilities?

Are other business services adequate, such as machine shops, postal facilities, job printers, and so on?

(B) Banks

Are local banking facilities adequate to serve the community's needs?

(C) Transportation

Are transportation facilities adequate to handle incoming and outgoing shipments? Consider truck, rail, air, and water requirements.

Are transportation facilities adequate to provide convenient passenger service within the community?

Are there adequate parking facilities?

Does the local traffic plan facilitate easy movement of motor vehicles?

Do public transportation companies co-operate in scheduling good transportation for employees?

Is passenger service in and out of town adequate? Consider train, air, and bus requirements.

(D) Utilities

Are utility services adequate to meet business requirements at reasonable rates: Power, water, gas, telephone, sewage disposal?

Can these services be extended readily to new industrial plants outside present service areas?

(E) Health

Are there adequate health facilities? What is the number of

**One of these locations
is just the right site for that new plant!**



BUILD IT ON THE FRISCO

CLOSE TO THE CENTER OF EVERYTHING!

- • • Close to the population center of the nation
- • • Close to the geographical center of the nation
- • • Close to an abundant supply of natural resources
- • • Close to an unlimited labor supply

FRISCO has an ideally located plant site to suit your particular requirements!

Looking for a new plant site that is economically sound and strategically situated? Our experienced Industrial Development staff, equipped with facts and figures, is skilled in making complete time-saving surveys for new plant locations to guide you in selecting the site suited to your requirements. In addition to above locations, we have a number of sites with distinctive features for certain specialized industries.

Numerous studies have been made to secure data about water, natural gas, power and other resources on almost any industrial site in the nine Frisco-State Area. Complete information is also available on transportation facilities, present industries, manpower, living conditions and other essential facts for each locality.

No matter how tentative your plans, discuss your requirements with us in complete confidence. Phone or write today to:

INDUSTRIAL DEVELOPMENT DEPARTMENT
215 Frisco Building
St. Louis 1, Mo.
CHestnut 1-7800



Sites:

Tracts from 50 acres to 3,000 acres.

Water Supply:

Many sites located on rivers having minimum flow of 10 million to 37 billion gallons daily.

Resources:

Abundant basic mineral and agricultural raw materials.

Fuels:

Low cost coal, natural gas and oil.

Population:


31,340,000 (19.26% of U.S. total) live, work and *BUY* in the 9 Southeastern and Southwestern States served by Frisco.

Transportation:

Frisco has 5,000 miles of track serving a 9-state area . . . also, many other land-air-waterways lines.

5,000 MILES SERVING:

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ILLINOIS

*land of new . . .
... opportunity*

where the "climate"
is right for your
progress and
happiness

whatever your product . . .
before you decide . . . consult . . .

STATE OF ILLINOIS
DIVISION of INDUSTRIAL PLANNING and DEVELOPMENT
CAPITOL BUILDING . . . SPRINGFIELD, ILLINOIS
FRED R. FALKENSTEIN, superintendent

NEW PREFERRED OFFERINGS
from the
MONON RAILROAD

Select, high profit offerings to new or expanding industry!

Plant Sites

Heretofore underdeveloped communities now offer unusual opportunities—including a cordial welcome, an immediately available labor supply and all utilities, with an abundant supply of natural gas.

Investigate Now

This may be your answer to rising costs. A letter brings you full information. And a visit to Monon territory will convince you—Indiana is on the move!

Write
INDUSTRIAL DEVELOPMENT AND
REAL ESTATE DEPARTMENT
MONON RAILROAD
THE HOOSIER LINE
608 S. Dearborn St. • Chicago 5, Illinois



hospital beds per 1,000 people? How does this compare with other communities in your area?

Are there an adequate number of physicians and dentists?

Are nursing and health clinic services available?

Are there adequate and enforced sanitary laws?

(F) Shopping

Are modern shopping facilities easily available? Consider department stores, groceries, appliances, and so on.

SOCIAL, CULTURAL, AND EDUCATIONAL INSTITUTIONS

(A) Schools

Are there adequate facilities for training employees—business schools, trade schools, apprenticeship courses, and so on?

Are there adequate elementary and secondary schools? What is the number of pupils per teacher? How does this compare with the state average and the national average (26.8)?

What are the salary levels for teachers in elementary and secondary schools? How do these compare with the state average and the national average (\$3,930)?

Does the local school system have a vocational training department? How good is the instruction?

What higher educational facilities are available in the area?

(B) Churches

Are there enough churches to take care of community needs?

Apart from their religious function, do the churches serve as centers of community activities, public forums, and meetings for community betterment?

(C) Social, Cultural, and Recreational Facilities

Are there adequate civic and service organizations? Fraternal organizations: Social clubs (including country clubs)? Business and professional societies? Youth organizations?

Are there adequate recreational facilities? Parks, public golf courses, tennis, theatres, swimming, fishing, boating, spectator sports?

Does the community have adequate and up-to-date libraries, museums, auditoriums?

Are there adequate community welfare agencies, mental health facilities, and so on?

(D) Press, Radio, and TV

What local media serve your community?—newspapers, radio, television, and so on? Are these adequate for local needs?

What is the editorial policy of the local press and radio toward business?

Are anti-business radio commentators featured by local radio and TV stations?

What effect do nearby metropolitan papers have in the community?

If there is a labor press, how does it affect the community's understanding of business?

Do local unions maintain an active propaganda program? If so, is their material nationally or locally prepared?

BUSINESS CITIZENSHIP

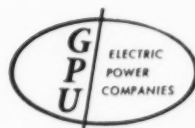
(A) Employee Relations

Have employers generally provided good management and super-

**It doesn't always pay to
"DO-IT-YOURSELF...!"**



Ask **GPU** *Site-Service*



Metropolitan Edison Co.
Pennsylvania Electric Co.
New Jersey Power & Light Co.
Jersey Central Power & Light Co.
Northern Pennsylvania Power Co.

one central source for detailed site and survey information in 1279 communities

Site-Service will do your "looking" in complete confidence and without cost. Working from its up-to-date files, *Site-Service* selects the industrial sites or buildings which meet your exact requirements. Nothing is left to chance. You receive pictures, plans and specifications, as well as detailed data on local taxes, labor, water, utilities and other services. A trained staff does your leg-work; helps you meet the right people. So, call on *Site-Service* for the right site in GPU Pennsylvania and New Jersey. It's an area of more than 1200 small and middle-sized communities—all within overnight shipping to one-third of the nation's population.



FREE brochure and detailed map. Write *Site-Service*, Dept. DR-1



GENERAL PUBLIC UTILITIES CORPORATION
67 Broad Street, New York 4, N. Y. • Telephone Whitehall 3-5600



Seeking a Plant Site?

North Western Land, U.S.A.

Unexcelled industrial opportunities lie in the strategically important territory of "North Western Land" U. S. A. Here may be found the essential requirements for industries large and small—a substantial labor supply, unlimited electric power, good water supply, rich mineral deposits and vast timber and agriculture produce sources. And throughout this fertile land is woven North Western's 9500-mile rail system—at your service for fast, safe, dependable transportation.

Investigate today the many advantages of North Western Land, U.S.A. Address your inquiry in confidence to:

A. O. OLSON
Director of Industrial Development
400 W. Madison St., Chicago 6, Ill.

CHICAGO and NORTH WESTERN RAILWAY SYSTEM

vision over the years? Are there one or two employers whose practises are harmful to the reputation of the community's other enterprises?

Have employers generally improved employment opportunities, wages, and working conditions on a *voluntary* basis?

Is communication between employers and employees effective?

Do local employers make a serious attempt to provide steady employment from season to season?

Have most employers demonstrated an understanding of the importance of human relations in their treatment of employees?

(B) Participation in Politics and Government

Are local business leaders active in serving on legislative affairs, committees and other legislative groups?

Do the activities of these groups result in constructive action?

Are a sufficient number of employers consistently willing to be identified as aggressively for or against controversial issues which affect the business climate?

(C) Leadership in Community Affairs

Are local business leaders setting an example of personal good citizenship and are they encouraging their employees to do likewise?

Do local employers work well together on joint efforts to improve the business climate of the community?

Are local employers willing to accept their reasonable share in contributing to charitable needs?

What efforts are local employers making to explain their business, policies, and plans in terms of the community's interest?

To what extent are local business leaders represented on such groups as the municipal planning commission, school boards, zoning boards, tax councils, and so on?

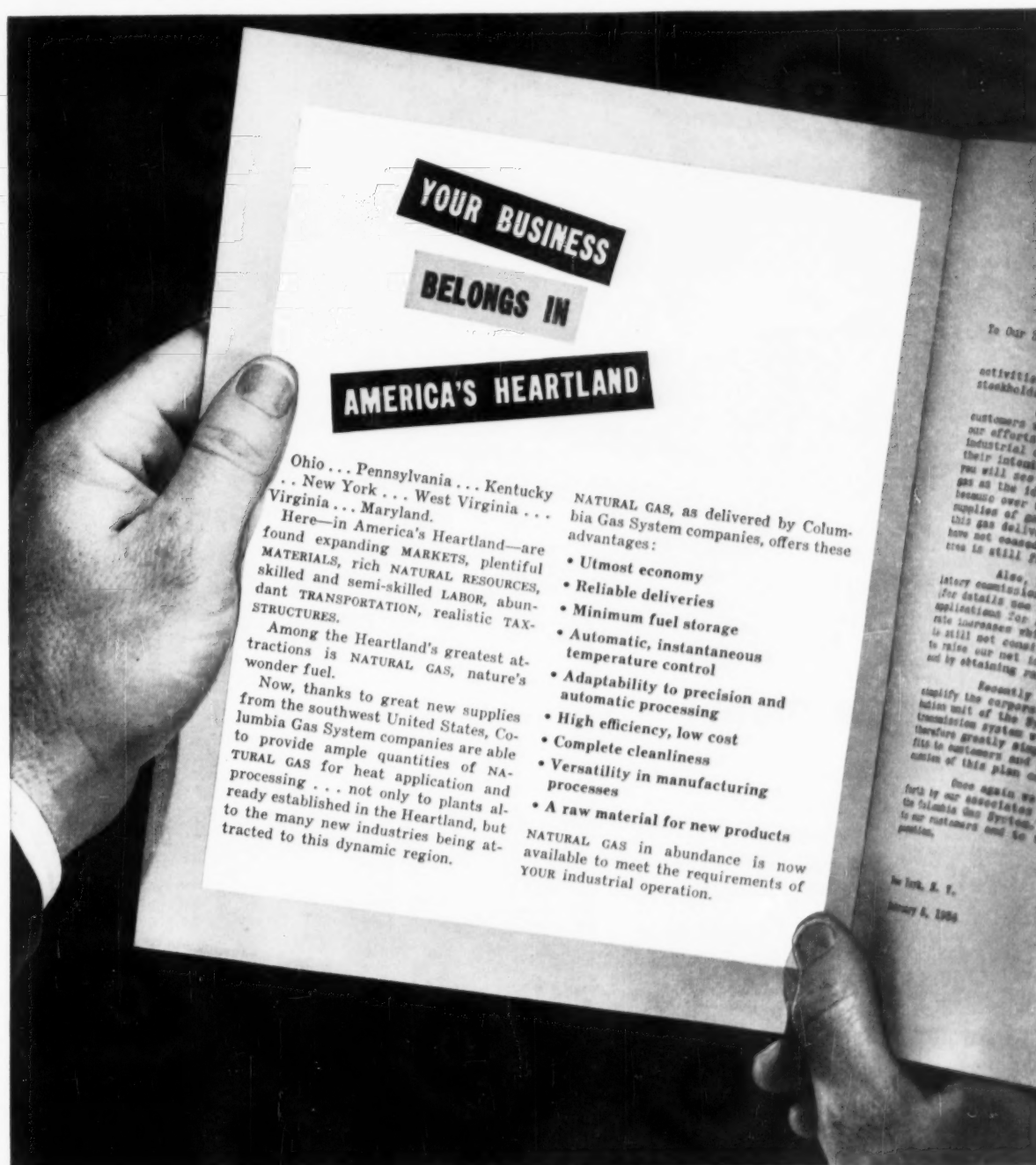
NATIONAL ISSUES

How do the following national issues affect the business climate in the community and what is being done locally to improve present laws:

- Taft-Hartley Law
- Secondary boycotts
- Featherbedding
- Recognition of states' rights, especially in areas like picketing, strikers, and so on
- Compulsory unionism
- Industry-wide bargaining
- Strike votes
- Health and welfare plans
- Disclosure of management information
- Injunctions
- Walsh-Healey Law
- Davis-Bacon Law
- Anti-trust laws
- Government competition with business
- Fair Trade laws
- Unnecessary government spending
- Federal corporate tax rates
- Other laws

Do the Senators and Representatives in Congress indicate by their actions and voting record a sincere interest and concern for your business climate—even at the possible expense of a few votes?

Where to Get the Facts You'll Need, page 110



Here's a page from our 1955 Annual Report. In this report is the record of another year of service to some 12,500,000 people—and hundreds of industries—whose roots lie in the seven states where Columbia operates. If you would like to read this report in its entirety, write to: Information Department—

THE COLUMBIA GAS SYSTEM, INC.

120 EAST 41ST STREET, NEW YORK 17, N. Y.



CHARLESTON GROUP COMPANIES

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UNITED FUEL GAS COMPANY
Ameri Gas Utilities Company
Atlantic Seaboard Corporation
Big Marsh Oil Company
Central Kentucky Natural Gas Company
Virginia Gas Distribution Corporation

COLUMBUS GROUP COMPANIES

99 NORTH FRONT STREET, COLUMBUS 15, OHIO
THE OHIO FUEL GAS COMPANY
Natural Gas Company of West Virginia

OIL GROUP

8 EAST LONG STREET, COLUMBUS 15, OHIO
The Preston Oil Company

PITTSBURGH GROUP COMPANIES

800 UNION TRUST BUILDING, PITTSBURGH 19, PA.

THE MANUFACTURERS LIGHT AND HEAT COMPANY

Binghamton Gas Works
Cumberland and Allegheny Gas Company
The Keystone Gas Company, Inc.
Home Gas Company

DON'T LOOK ANY LONGER



...the Reading has just the location for your new plant!

Save yourself time, trouble and money. Get in touch with our industrial development experts. They can quickly assist you to pinpoint the *right* location for your particular business in an area that's booming with success—*territory that's served by the Reading!*

Here in the heart of America's greatest industrial states—Pennsylvania, New Jersey and Delaware—you will find a wealth of *all* the prerequisites for future growth and success. And most important—you will be situated in the hub of gigantic markets... within easy reach of 40% of the U. S. population!

If you're looking for a plant location *with a future*, look to the Reading! You will receive complete, confidential service without charge. Contact Beeber Gross, Manager, Industrial Development Department, Reading Terminal, Philadelphia 7, Pa.



READING COMPANY



LOCATION ANALYSIS

Where to get

THE FACTS YOU'LL NEED

Here are some of the most common sources of information. Says the National Industrial Conference Board, which compiled the list for its publication *Techniques of Plant Location*, "It contains those sources which have proved to be most useful..."

COMMUNITY

General information about attitude, services, type of community, and so on.

- Bankers in area
- Chamber of Commerce
- Civic leaders
- Customers in locality
- Industrial associations in area
- Industrial real estate companies
- Libraries
- Manufacturers in area
- Merchants in area
- Municipal officials
- Newspapers in area
- Railroads serving area
- Real estate brokers in area
- State and local development agencies
- Utilities serving area

CONSTRUCTION COSTS

- Architects in area
- Contractors in area
- Manufacturers in area
- Trade paper indexes

ELECTRICITY

Availability and rates

- Chamber of Commerce
- Edison Electric Institute
- State and local development agencies
- U.S. Department of Commerce
- Utilities serving area

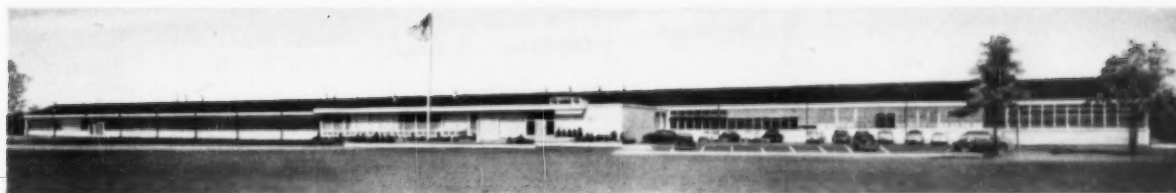
GAS

Availability and rates

- Chamber of Commerce
- American Gas Association
- State and local development agencies
- Utilities serving area

More sources on pages 112-113

Another Industrial Leader...



Lenox INC., maker of fine China...



chooses LURIA STANDARDIZED BUILDINGS



Architect: H. F. Everett & Associates, Allentown, Pa. General Contractor: Ole Hansen & Sons, Pleasantville, N. J.

The INDIVIDUALITY and DURABILITY of CUSTOM-DESIGNED UNITS plus the SPEED and ECONOMY of LURIA STANDARDIZATION

Luria provides more—*much more*—than just the economy and speed of standardization. The Luria "System of Standardization" permits practically *unlimited freedom of building design and architectural treatment*. What's more, Luria steel structures are *permanent* structures; the materials and construction of every Luria Building surpass the most stringent building code requirements. And finally, your in-

vestment in a Luria Building—in its erection and maintenance—will prove to be substantially smaller.

Whether your expansion program calls for structures as large as the 165,000-square-foot Lenox building or a single small construction, you will find your Luria representative interested...and helpful. Contact him today.

LURIA ENGINEERING Company

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District Offices: ATLANTA, PHILADELPHIA, BOSTON, CHICAGO, WASHINGTON, D. C.



"OUR DECISION TO MOVE TO IOWA WAS A WISE ONE."

J. W. Wilson

J. W. WILSON, PRESIDENT, ALUMINUM COMPANY OF AMERICA

"Aluminum Company of America chose to locate its newest sheet and plate mill in Iowa only after extensive investigation of many sites. Iowa was selected because of the many advantages the area offered.

"The plant would be adjacent to the consuming market area and we found adequate facilities available for the transportation of raw materials and finished products to and from the plant.

"It became obvious as our investigation progressed that in Iowa we would be surrounded by good neighbors, friendly people with strong attachment for their state, cooperative and progressive in their efforts to help their fellow Iowans prosper.

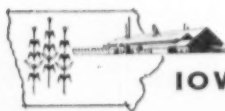
"And we became confident that the state government was made up of men with reasonable philosophies toward industrial development. These men were

interested in stabilizing the state's economy and sponsoring equitable tax programs by which the state could finance its development.

"Since 1946, experience has shown that our expectations were fully justified. Events are proving that our decision to become an industrial citizen of Iowa was a wise one."

Iowa's geographical location in the center of the nation is an important advantage to industries who distribute their products nationally. And, with the U.S. population center steadily moving toward the Mississippi River, long range industrial planners consider Iowa's location doubly important. If you're considering a move, write the Iowa Development Commission for a list of available plant sites and a study of Iowa's transportation facilities.

Address your inquiry to —



IOWA DEVELOPMENT COMMISSION

321 Jewett Building • Des Moines 9, Iowa

HOUSING

Availability

Civic officials
Newspapers in area
Real estate brokers in area
State and local development agencies

INDUSTRY IN AREA

Customers
"Editor and Publisher Market Guide"
Industrial associations in area
Municipal publications
State and local development agencies

LABOR SITUATION

Availability and skills

Chamber of Commerce
Industrial associations in area
Manufacturers in area
Municipal authorities
State and local development agencies
State employment service office in area

Bonus and fringe benefit practises

Manufacturers in area
Unions in area

Union contracts

Manufacturers in area
Unions in area

Wage levels

"Help Wanted" ads
Manufacturers in area
Department of Commerce data

MARKETS

Present customers' location, volume, type of product

Sales records

Growth potential of individual markets (present customers, possible new customers within present market, possibility of new markets)

Company forecasts, salesmen, customers
Studies by:
Advertising agencies
Chamber of Commerce
State and local agencies

Transportation costs to customer locations: present versus new sites

Carriers serving area

Effect of new plant on marketing areas of existing plants

Sales records

SITE

Availability

Railroad development department
Real estate brokers in area
Utilities in area

Flood History

City and Army engineers
U.S. Geodetic Survey maps

Options	{ Real estate brokers
Price	{ Real estate brokers
Title	{ Legal assistance in area
Zoning	{ Municipal authorities Real estate brokers in area

TAXES

{ Industrialists in area Municipal officials State and local development agencies Tax assessors in area Tax attorneys in area

TRANSPORTATION

Freight rates, schedules, services	{ Carriers serving area
------------------------------------	-------------------------

WATER SUPPLY

Availability and quality	{ City engineers Fire insurance carriers State and local development agencies U.S. Department of Interior Utilities in area
Rates	{ Utilities in area

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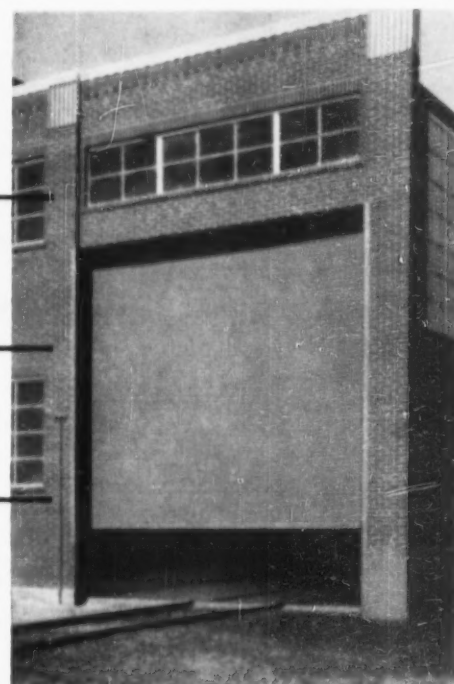
4-56

Doors open straight upward--no space is wasted anywhere

Maximum protection against theft, riot intrusion, vandalism

Every door is REGISTERED¹ for your protection

Extra-heavy zinc coating, for lasting weather resistance²



Kinnear Rolling Doors

You get *more* protection plus *more* efficiency in Kinnear Rolling Doors. Coiling above the doorway, they open out of the way! They never block light from close-by windows or fixtures. No floor, wall, or ceiling space is sacrificed. Hoists, conveyors, high-lift fork trucks and similar equipment can be used to maximum advantage.

1. Details on every Kinnear door are REGISTERED—kept in fire-safe vaults. Damaged or worn parts are *permanently* replaceable. Your Kinnear Door is never "orphaned."

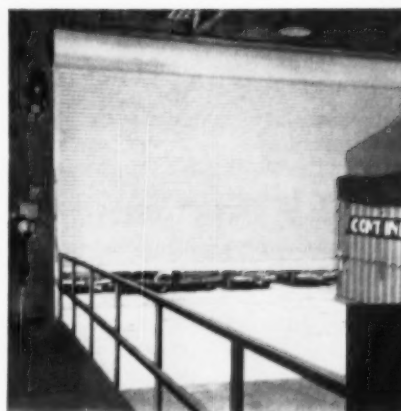
2. Kinnear's rugged interlocking-slat curtain is heavily galvanized (1.25 ounces of pure zinc per sq. ft., A.S.T.M. Standards). In addition, the special Kinnear Paint Bond assures immediate, thorough coverage and adhesion of field-applied paint.

Kinnear Rolling Doors are engineered to fit any need, with manual-lift, crank, chain or electrical operation. Controls for motorized doors can be placed at any number of convenient spots. For long, low-cost service, insist on Kinnear Rolling Doors! Write for catalog.

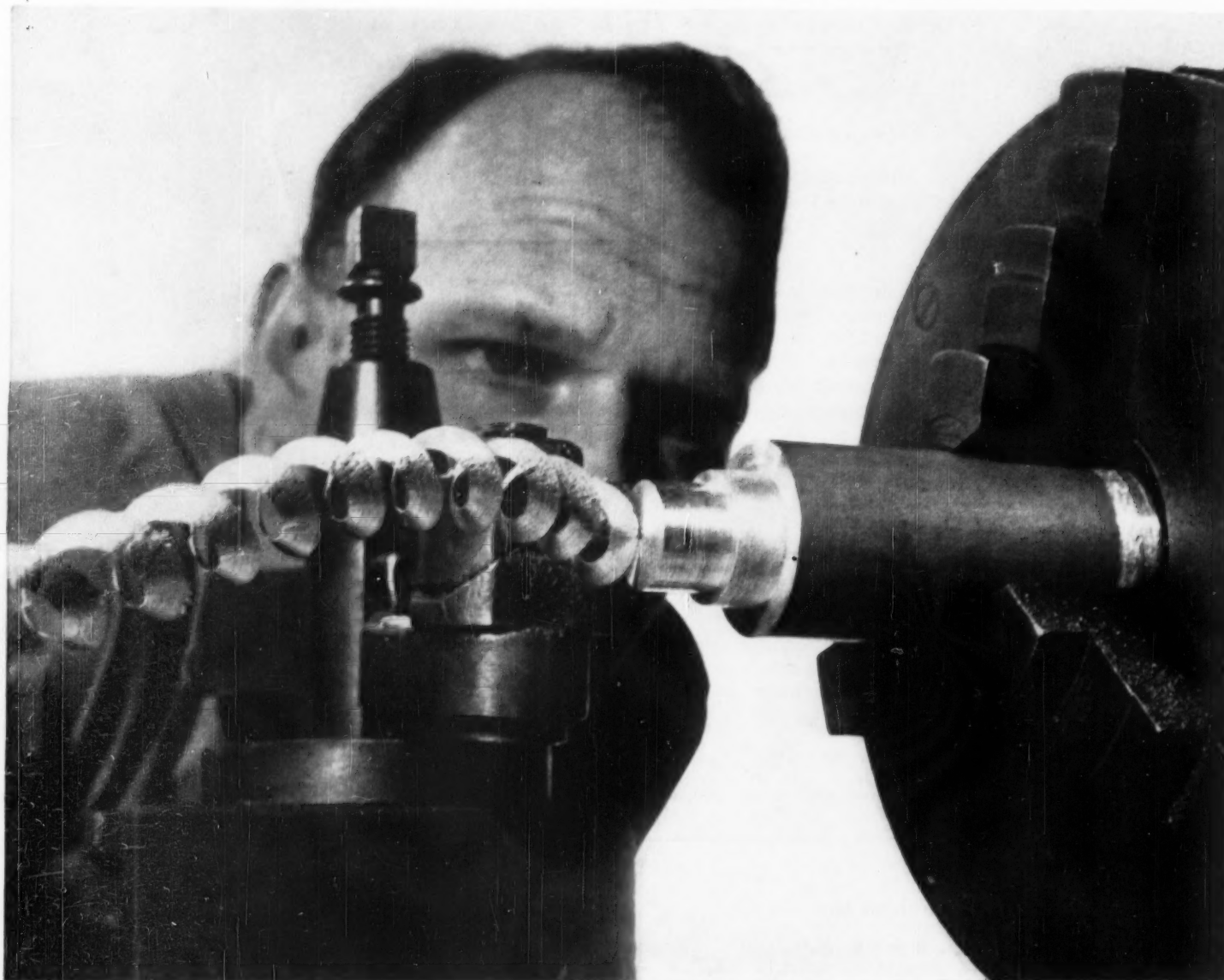
The KINNEAR Mfg. Co.

FACTORIES

1500-20 Fields Ave., Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.



KINNEAR
ROLLING DOORS
Saving Ways in Doorways



Good turn for machine tools

Read how banks help America's toolbuilders create the machinery for mass production.

This is a picture of a man and a machine—working on a way of life.

The material is metal, inert and unformed. But shaped with a craftsman's skill and turned to a tolerance finer than an eyelash, it becomes a machine tool. On the assembly line it will be an instrument indispensable to mass production and irreplaceable in the American economy.

That's a pretty big bouquet to toss any industry's way. But look at the facts.

Handmade items come high. To make them at prices people can afford, you must have machines. Only ma-

chine tools can make machines, and once you make a machine, you can put it to work manufacturing products for lots of people.

There you have mass production and the open secret of American abundance. It goes without saying that commercial banks get behind the machine-tool industry when cold cash is necessary. Moreover, banking and machine tools have something in common that's awfully important to you and every other American.

Both take raw materials . . . one metal, the other money and credit, and turn them into instruments for the

national good. In plain language, the machine-tool people put machines to work and thereby create jobs. The bankers put money to work, and wherever money works you can be sure men and women work, too.

The Chase Manhattan Bank of New York, first in loans to American industry, is proud of the contribution commercial banks are making to the progress of our country.

**THE
CHASE
MANHATTAN
BANK**

(MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION)

(One of a series of advertisements appearing in New York City newspapers)

HIGHLIGHTS & sidelights

comment by

Hoesta R. Gardner

Uncorking the market

The "Adequate Wiring" campaign now being carried on by the Electrical Industry holds a lesson for many business men:

Electrical manufacturers developed a covey of new appliances, and did a good job of selling their advantages. Customers were ready and willing to buy. Power companies did their part, too. They installed new generating capacity so they'd have the current to meet the new demand.

It looked like a fine situation. Power . . . Customers . . . Products. All ready to go.

There was just one problem: It was impossible to put the three together because the electrical wiring in most homes—and in practically all the houses more than fifteen years old—was not adequate to bear the load of the new appliances that were being developed.

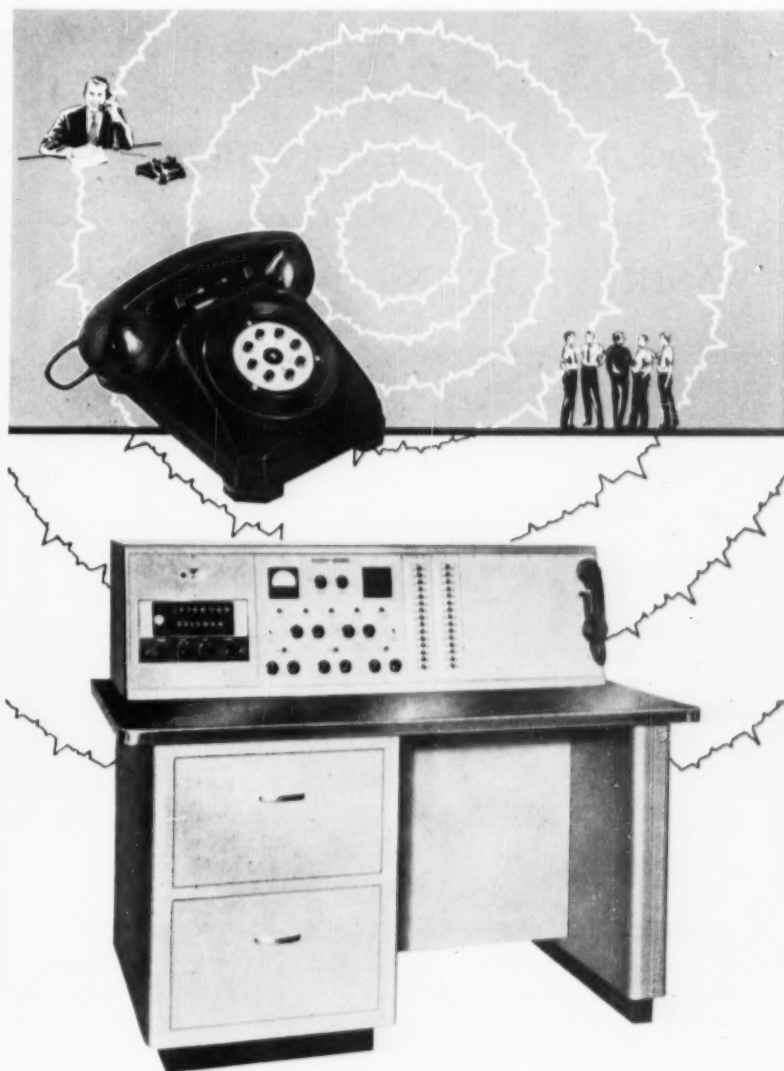
The ordinary 20-amp., 115-volt

circuit has a rating of 2,300 watts. It can handle an electric iron and a dishwasher. But plug in an electric toaster, or even a waste-disposer in addition, and it blows.*

So, the electrical industry is going all-out to sell the need for rewiring older homes and for building adequate wiring into new ones. It's doing a fine job. But it wishes it had been able to start the campaign quite a while ago—before the need became urgent.

In the electrical industry's case

*For those who want to do their own electrical arithmetic, most table lamps, food mixers, vacuum cleaners, and radios take less than 300 watts. Waste-disposers, refrigerators, electric blankets, and TV sets are rated at about 300 watts. Electric irons, dishwashers, portable heaters, food fryers, toasters, clothes washers, and small room air conditioners are rated at 1,000 to 1,300 watts. Home workshop units, electric broilers and roasters, and built-in electric heaters range from 1,500 to 1,700 watts.



Have you heard about Stromberg-Carlson's Plan for Leasing paging and inter-communication systems?

"Management" says one counsellor, "is the process of getting things done through people." Certainly one of Management's prime aids is fast, efficient communication.

That's our specialty. We make communication systems as simple as a 6-line telephone intercom and as complex as a metropolitan auditorium installation.

And our local representatives custom-tailor every job to the specific needs involved.

What's more—we do this on a long-term lease—so that even a firm with every penny of capital budget spent can still have the most modern sound system.

Coupon below is well worth sending.

STROMBERG-CARLSON COMPANY

A DIVISION OF GENERAL DYNAMICS CORPORATION

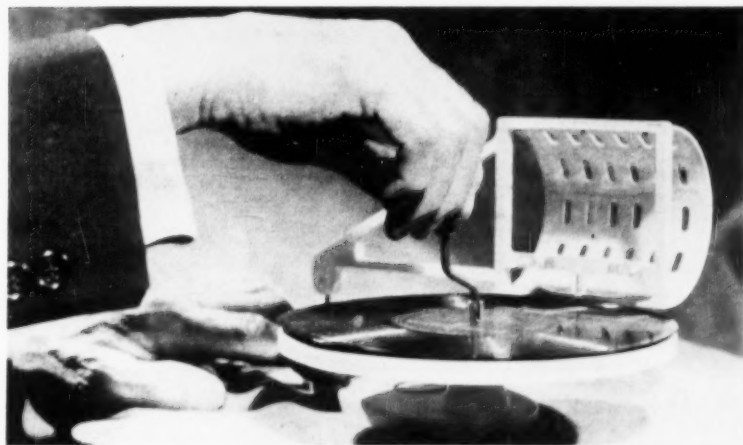
1704 University Avenue, Rochester 3, New York

I understand I can have a free survey of our premises made and specifications proposed for a paging and/or intercom system without any obligation at all. Please have a representative call.

COMPANY _____

ADDRESS _____

PERSON TO SEE _____



Plastics pass the word

Penetrating the Iron and Bamboo curtains is no simple matter, as everyone knows. Radio and airborne leaflets do a good job, but there's always room for another means of communication—particularly if it is simple and inexpensive. RCA thinks the phonograph pictured here might meet those specifications. Made of plastic, and operated by turning a crank, the phonograph weighs only seven ounces, can be

packed in a container eight inches square and four inches deep, uses a plastic record. RCA's engineers think the unit can be made in quantity at a cost of less than 50 cents, is offering design data to interested companies and organizations. Requests for information should be addressed to James M. Toney, Vice-President and General Manager, RCA "Victrola" Division, Delaware Township, Camden 8, N.J.

Cambridge

WOVEN WIRE CONVEYOR BELTS

take the bottlenecks out of
WASHING, DRYING, PACKAGING



OPEN MESH of rustproof, all-metal belt provides free circulation of process solutions and drying air; assures waste-free packaging.

Whether you're handling slab, sheet or pelletized materials . . . or packaging in bottles, drums or bags . . . Cambridge Woven Wire Conveyor Belts combine movement with processing. Continuous belt-to-belt flow through washing and drying cycles, roasting kilns, and weighing and sealing operations cuts costs and provides controlled uniform production.

NO MATTER WHAT YOU'RE PROCESSING . . .

. . . chemicals, plastics, metal parts, food products, ceramics, glass . . . or whether your process is wet or dry, at sub-zero temperatures or 2100° F. . . you can increase production and cut operating expenses all along the line by combining movement with processing on Cambridge Woven Wire Conveyor Belts.

Cambridge Belts are individually designed for your installation from a wide variety of specifications. The metal or alloy from which they are woven is specially determined after investigating the resistance to heat or corrosion required by your operating conditions.

Ask your Engineering Department to call in your Cambridge FIELD ENGINEER and discuss how you can eliminate batch handling from your processing. The Cambridge man nearest you is listed under "BELTING, Mechanical" in your classified phone book. WRITE for your PERSONAL COPY of 130-page Reference Manual illustrating ways in which other manufacturers have employed Cambridge belts, and including design information.



The Cambridge Wire Cloth Co.



OFFICES IN PRINCIPAL INDUSTRIAL CITIES

Department Y,
Cambridge 4,
Maryland



wartime shortages might have made it difficult to launch such a campaign at an earlier date. But we wonder how many other industries are missing the sales caravan of tomorrow by failing to lay the groundwork to-day.

What kind of a building?

If you're planning a new office building—or have a product to sell to those who are—you'll find plenty of good suggestions in a report prepared for the General Services Administration by an advisory committee on building construction. It covers everything from acoustics to maintenance. Here are samples:

- Floor to floor height can be reduced (and construction costs lowered) by taking advantage of modern lighting and air-conditioning systems. If fixtures are recessed in the ceiling, room height may be held to as little as 8½ feet.
- Windowless buildings are not recommended, even though completely air conditioned, but "the trip type of window has been overdone." The in-swinging, nonferrous metal window which can be cleaned from the inside, yet locked for air control, is a recommended choice.

• Escalators should supplement, and perhaps even replace, elevators in buildings less than five stories in height; and elevators, wherever used, should be fully automatic and operable by the passenger.

• Acoustical correction should be provided where required—and it is required in a great many areas. Plaster, acoustical board, or metal pans may be used, with the latter being the most satisfactory, though the most expensive.

• Corridors should not be less than five feet wide, and should be well lighted. Over-wide corridors, though, may become "a tempting space for storage."

• Interior doors should be held down in width. Thirty-six or thirty-eight inches is usually wide enough.

• Some services are better handled by individual units than by central systems. "A central vacuum cleaning system is obsolete. This work should be handled by small vacuum cleaners, plugged in where the work is to be done." The same is true of chilled drinking water. Best practise to-day uses individual coolers connected to the building water system.

Continued on page 118



Heat pump's helper

The heat pump, an electrically-operated device which can act either as a heating or cooling unit, represents a promising approach to year-around air conditioning. It can draw heat from air, earth, or water to warm the interior of a building; or it can drain heat from an enclosed area to provide a cooling effect. Until recently, though, its application was limited to areas where electrical cost was low and temperature variation relatively small. Now, the equipment has been improved to the point where several installations (one, an office building) in regions as far

north as Ohio are proving practical, and use of solar energy for auxiliary heating may help to extend its use still further. The picture shows a simple solar energy collector devised by the U.S. Department of Agriculture and the Kansas Agricultural and Engineering Experiment Station for use with the heat pump. The collector itself is just a blackened metal plate and a hose to draw off warmed air. A few plates like this, built into the roof of a house, might provide enough heat to reduce electrical energy requirements by about one-fourth during daylight hours.

Whatever your business
... SERVEL
WATER CHILLERS
help make men and machines
work better

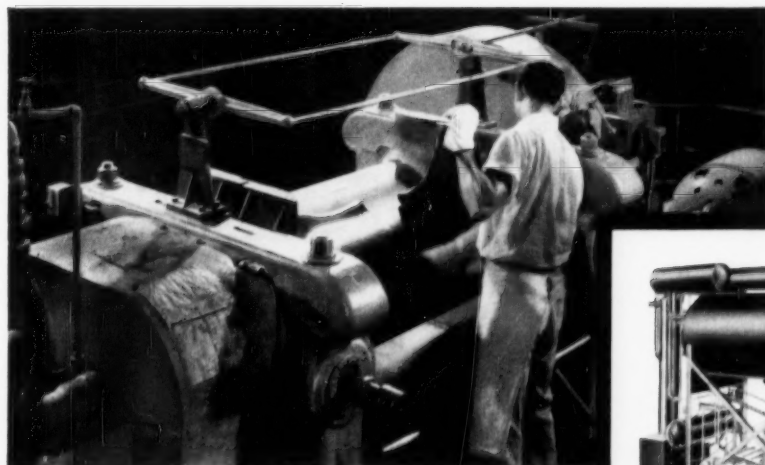


COMFORT CONDITIONING . . . 175 TONS

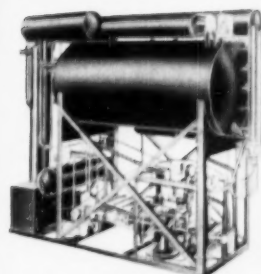
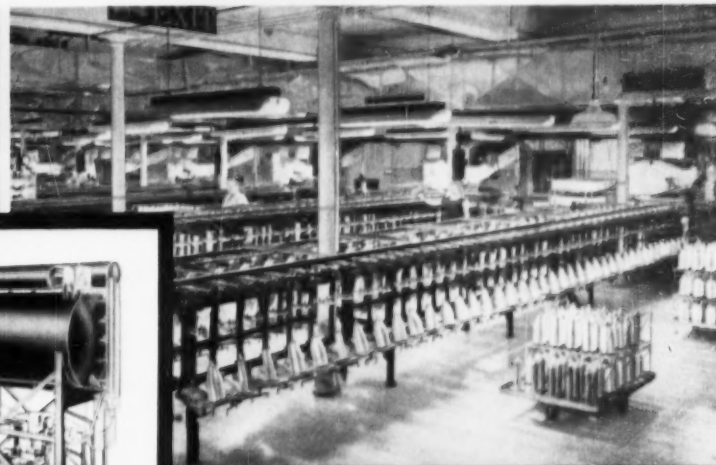
Lamar Office Building,
Jackson, Miss.

INDUSTRIAL CONDITIONING . . . 50 TONS

Pepperell Manufacturing Company,
Fall River, Mass.



PROCESS COOLING . . . 50 TONS
 Arrowhead Rubber Company, Los Angeles, California



Comfort conditioning . . . industrial conditioning . . . process cooling . . . these are the areas where Servel Water Chillers prove profitable to an ever-growing variety of businesses.

There are many reasons why Servel is chosen. For one—simplicity—these 25-ton units are delivered as a package . . . complete and ready to install. All operating and safety controls are built in. What's more, they're as easy to hook up as 1-2-3. Simply hook up steam, electricity and water.

Another—Servel Water Chillers operate on steam from any source. Many industrial applications utilize waste or exhaust steam.

These units are compactly built—with exceptionally light floor loading. Place them on the roof, in the basement, or on any floor between.

Check these advantages against your cooling needs. Then see your Servel Air Conditioning Dealer—or mail coupon.

For the best in residential air conditioning, too, get the story of the new Servel "All-Year"® line!

Servel

the name to watch for great advances in

**AIR CONDITIONING
 REFRIGERATION**

Send coupon for details now!

SERVEL, INC., DEPT. DR46, Evansville 20, Indiana

Please send me full information on Servel Water Chillers.

☐ Industrial Conditioning ☐ Process Cooling ☐ Comfort Conditioning

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EQUIPMENT AND
SYSTEMS TO STORE
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BAR RACKS to
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Exchangers,
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STORE BAR STOCK ECONOMICALLY,
EFFICIENTLY and SAFELY

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**PORTABLE Heavy Duty
BAR RACKS**



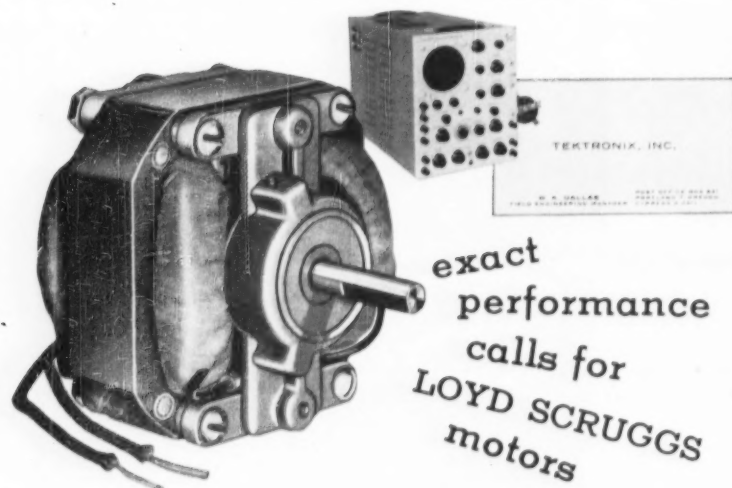
Stock checking no problem. Stock storage and selection are neatly and efficiently performed. Ease of handling with automatic tongs. Let our engineers explain the advantages and features that make Palmer-Shile racks the best investment in more efficient handling of bars, sheets, etc.

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Tektronix Cathode-ray Oscilloscope demands a constant, dependable motor to cool precision measuring tubes. Tektronix specifically called for Loyd Scruggs 4-pole shaded pole motors, tailored to their specifications.

Take a tip from Tektronix, another of the many leading manufacturers specifying Scruggs Motors. Learn how we can help you develop better products. Sample motor built to your specifications. No obligation. Write Loyd Scruggs Co., Festus, Missouri.

You can stake your reputation on **SCRUGGS MOTORS**

THE **Loyd Scruggs** COMPANY
FESTUS, MISSOURI

MANUFACTURERS OF PRECISION INSTRUMENTS SINCE 1934

How to keep them clean

Personal cleanliness, as every plant manager knows, is one of the best ways to head off occupational skin disease, and a good many other ailments as well. Yet more than one cleanliness campaign has bogged down for a simple but understandable reason: Management simply didn't provide a satisfactory soap. It's the old "for want of a nail..." story.

Picking an industrial cleanser involves quite a few considerations. Dr. Louis Schwartz, well known consultant on industrial dermatitis, summed them up for the Association of Soap and Glycerine Producers this way:

The cleansing material—cake, granule, or liquid—should be:

- Freely soluble in water, hot or cold, hard or soft.
- An efficient soil-remover, yet not abrasive or otherwise irritating to the skin.
- Convenient for use (liquids and granules should flow freely through dispensers; cakes should be of a convenient size).
- Long-lasting and resistant to infestation by deterioration.

Obvious points, yes. But how often are they all considered?

Thinking around a curve

How often do we "cover the bases," without ever covering the right one? And how often do we jump to a perfectly logical, sensible

GLOSSARIES WANTED

Because many of the words industry uses are missing from the standard desk dictionary, quite a few companies and trade associations have prepared their own glossaries. And very useful publications they are.

We're making a collection of these industrial word-books, with a view to preparing a list that will be made available to our readers.

If your company or trade association publishes such a dictionary, or if you've found some that are particularly useful, we hope you'll let us know about them. Address: Industrial Editor, DUN'S REVIEW AND MODERN INDUSTRY, 99 Church Street, New York 8, N.Y.

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BANKERS BOX CO., Dept. DR4
720 S. Dearborn St., Chicago 5, Illinois

—and wrong—conclusion?

If you've done either of those things, we think you'll enjoy this item from a recent talk by General Maxwell D. Taylor, Chief of Staff of the United States Army:

He was speaking of how new weapons may bring forth new, and unexpected, tactics on the part of the enemy. In Korea, he pointed out, the destructiveness of our artillery forced the Chinese to seek safety in close proximity to our own lines. Often they would crawl forward at night and burrow in to the ground only a few yards from our own positions so that it would be difficult for our soldiers to train their artillery fire on them.

This made it necessary for our men to devise some new and unusual methods of their own.

Said General Taylor, "The 45th Division discovered that by filling pot-bellied tent stoves with napalm, and placing them in a depth charge launcher borrowed from the Navy, it was possible to reach an enemy otherwise invulnerable to attack." Our men simply lobbed the burning tent stoves down the hillside.

"I have often thought," General Taylor continued, "of the probable

effect of this bit of American ingenuity on future supply planning.

"As you know, our logisticians take the tables of consumption of all types of equipment . . . and build up factors which will guide them in future procurement.

"I have no idea how many of these pot-bellied stoves were consumed . . . in the communist trenches, [but] someone is going to arrive at a most fallacious consumption factor in pot-bellied stoves, which doubtless will cause many a logistician of the future to lose faith in his slide rule."

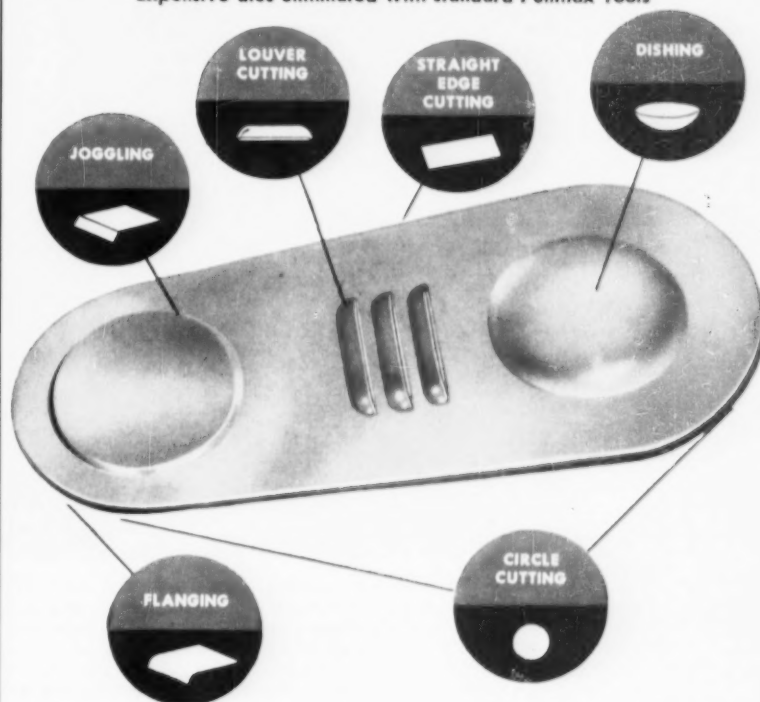
Before you laugh, or say, "That's just like the Army," take a look at your own planning operations.

How to make friends

How can you find out what your neighbors think of you—and how can you improve that opinion? There's a lot of good advice on these topics in a manual prepared for the American Iron and Steel Institute by Hill and Knowlton, its public relations counsel. Single copies of the manual, *Elements of a Community Relations Program*, may be obtained from H&K, 350 Fifth Avenue, New York 1, N.Y.

PULLMAX METALWORKING IDEAS

Expensive dies eliminated with standard Pullmax Tools

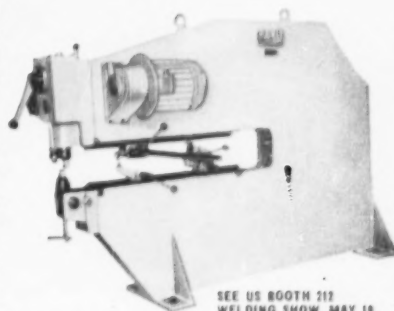


This safety guard for a chain drive made complete on a PULLMAX

Only the Pullmax universal shearing and forming machine has the versatility to do all of the metalworking jobs in your Model Shop, Engineering or Maintenance Departments.

This one versatile machine does straight shearing, inside or outside circle cutting, design cutting, inside square cutting, beading, joggling, slot cutting, louver cutting, dishing, edge bending and flanging.

7 sizes of machines cut up to 13 1/2" in mild steel. Ask for a demonstration right in your plant.



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MORE MONEY-SAVING METALWORKING IDEAS
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Brighter, whiter Weston Bond makes letters look neater, cleaner, more impressive. It's a rag content paper made better by Weston for service and economy. Ask your printer to use it. Available in colors and matching envelopes.



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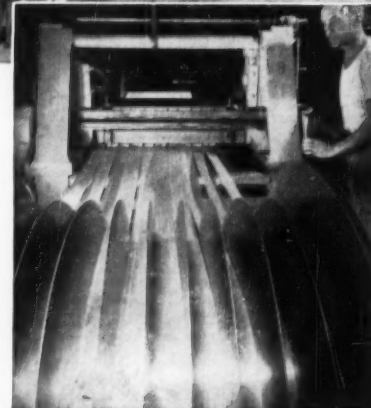
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DALTON, MASSACHUSETTS

Makers of Fine Papers for Business Records Since 1863

Only STEEL can do so many jobs so well



Let It Snow. This eye-popping "Sno-Freighter," built by one of our customers for Alaska Freight Lines, Inc., operates over snow, ice and bulldozed trails. Each wheel in the 6-unit train is driven with its own electric motor. The 7-foot high tubeless tires are 38 inches wide at the base, and the Sno-Freighter can wade through 6-foot-deep water without damage. USS steels played an important part in this amazing machine, including USS Shelby Seamless Tubing for the vital car coupling system.



Slit It Yourself. In this plant, USS Galvanized Steel Sheets are being slit into strips, which in turn will be formed into moulding channels. The galvanizing won't flake off, despite the extreme deformation.



Beautiful—And Safe. This handsome boat is possibly the safest pleasure boat ever made. With welded construction, gasoline and bilge areas can be completely separated, eliminating the most common cause of boat disasters: fire. The boat is made from USS Cor-Ten Steel, which is much stronger and more resistant to corrosion than carbon steel.

UNITED STATES STEEL

This trade-mark is your guide to quality steel



For further information on any product mentioned in this advertisement, write United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

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SEE the United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

Films for Management . . . THOMAS KENNY

How management is using films to move

goods to market and people to action.

MANAGEMENT people in business and industry are using films more extensively than ever before. Producers of business films, never busier, are looking for substantial gains in dollar volume this year. For sales training and promotion, to explain swift-changing technology, to better human relations, to tell the company story to the general public, and for many other special tasks, management is turning increasingly to film to project its thoughts.

Reel Briefs

Zinc Controls Corrosion (35 minutes, color) and this new absorbing motion picture shows how. Fire is rapid oxidation. Rust is slow oxidation but just as certain in destructiveness if rust-proofing is not provided. Experts estimate that the cost of corrosion runs to about \$6 billion each year in the United States. This fact-packed film demonstrates how you can recoup your share of this loss by applying zinc to steel.

The rust-retarded products shown range from the lowly garbage can to a television antenna tower in Texas, the second tallest structure in the world. Before showing how these and many other products can be rust-retarded, the film reveals the inside workings of the process of corrosion—a technical topic which is made highly understandable.

The film, which was produced for the American Zinc Institute by Paul Hance Productions, is outstanding for its impressive photography and clear, interesting presentation of a technical subject. It can be borrowed free from the AZI, 60 E. 42nd St., New York 17.

Serving Industry—The Story of H. K. Porter Company, Inc. (31 minutes, color) is a plant tour multiplied by twelve. It takes its audience on a fast-paced trip

through the dozen divisions of the swelling H. K. Porter Company which has grown more than one hundred-fold during the past fifteen years. Without feathering its own cap unduly, it shows how modern methods and the latest technology are used to produce specialty steels, wire rope, saws, brick, hose, and other products.

The film was made for several distinct purposes: to make Porter more well known in banking circles; to tell distributors, dealers, and their salesmen the story of the company's diversification; to familiarize the executives and employees with the work of other divisions; and to reach the general business community with its story. At the rate which Porter is taking on new divisions, this film may eventually turn into a wide-screen feature. It can be borrowed from Sterling-Movies, USA, 205 E. 43th St., New York 17, N.Y.



Taking a Bath in the Zinc

Molding Phenolics (20 minutes, b&w), like most technical films, would be immensely uninteresting if you were not concerned with the subject. But if the production of plastics is your line, you will find this fact-packed film as interesting as money.

It illustrates in exacting detail the most up-to-date processes by which phenolic molding materials are turned into telephones, appliance parts, radio and television cabinets, non-conductor parts for electrical equipment, and many other products.

Produced by the Bakelite Division, Union Carbide and Carbon Corporation, this instructive film doesn't push the products of the sponsor; instead it shows the company's customers how they can do a better job with the raw materials that are available. Suitable for showings to molders, designers, engineers, and technical students, the



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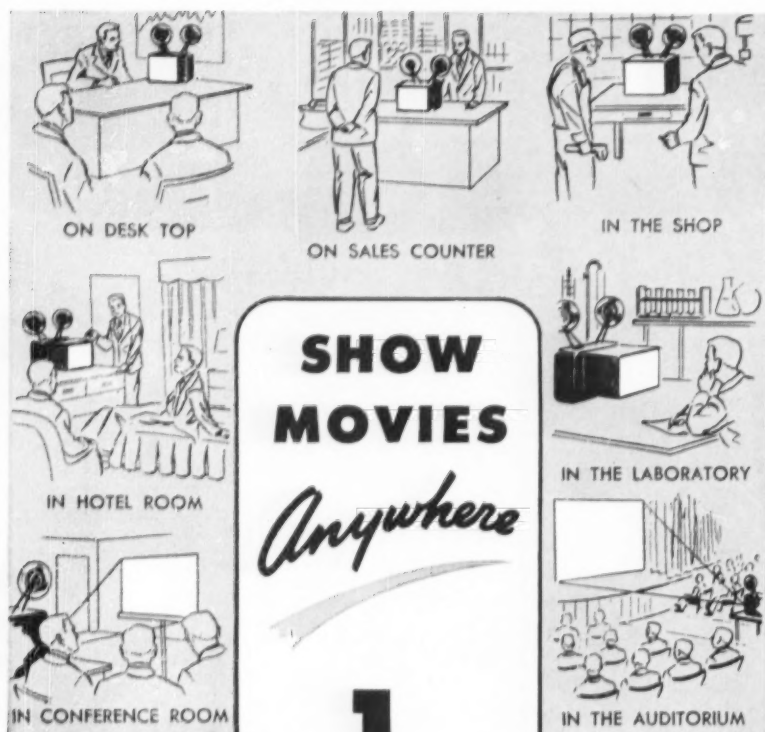
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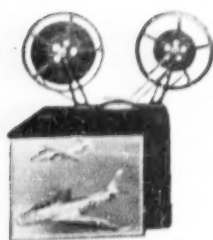
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Building materials and a host of other products can be more effectively demonstrated from a custom-built Olympic case. We will be pleased to quote on quantity production of special cases produced from your specifications in tough, good-looking TOLEX vinyl plastic. Send the coupon today for full information.

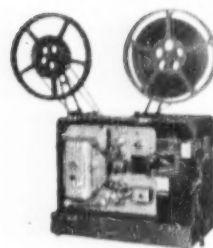
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with only 1 projector ...the TSI-Duolite



With built-in screen



With standard screen

Yes, we mean anywhere . . . even in lighted rooms. With the Duolite you can show 16 mm movies in many places that were never before practical. The Duolite has a large built-in TV size screen that gives you beautiful picture reproduction without the fuss and bother of setting-up a screen or darkening the room. Yet, when you want to use a standard external screen, the same projector can be used. Just a flip of the lever and you're ready to go.

The built-in screen allows movies to be shown *anyplace* you can set the projector down and plug it in. Think of that! Think what that could mean in terms of your doubling or even tripling the use of your films. Salesmen love the Duolite. It's so easy to set-up and operate. They don't have to lug around a separate screen and other equipment. Sales films can be shown right on the prospects desk without any disturbance at all. Any room big enough for a desk is big enough for a Duolite show.

Write today for free literature and complete specifications on the Duolite. If you wish, a demonstration can be arranged at no obligation.



TECHNICAL SERVICE, INC.

30865 FIVE MILE ROAD • DEPT. D. • LIVONIA, MICH.

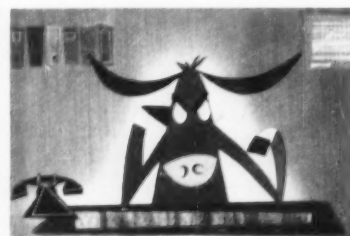
West Coast Office: 4357 Melrose Ave. • Hollywood 29, Calif. • Phone Normandie 5-6621

Canadian Distr.: S. W. Caldwell, Ltd. • 447 Jarvis St. • Toronto 5, Ont.

Foreign Distr.: Westrex Corp. (formerly Western Electric Export) • 111 Eighth Ave., N.Y. 11, N.Y.

film, which comes with an instructive manual, can be borrowed free from Bakelite Company, Technical Film Library, 292 Madison Ave., 10th floor, New York 17.

Calling All Salesmen (14 minutes, color) is a sprightly animated cartoon which tells salesmen that they should merchandise their ad-



vertising along with their products. Produced by Transfilm, Inc. for *Life* magazine, it promotes the pulling power of *Life* ads for the sales of "preebles" and other products. Distribution by *Life* magazine.

Behind Your Telephone Bill (15 minutes, color) is an amazing complex of electronic data processing equipment, which enables the Bell System to prepare 30 million bills each month. Produced by John Sutherland Productions for the telephone system's public relations program, it was made specifically to allay customers' fears about a new billing system. Available free from local offices of the Bell Telephone System.

New Slidefilms

Not only movies but also slidefilms are better than ever. Here are a few new slidefilms which you may be able to put to work for you.

Selling Is Mental (seven sound slidefilms, 15 minutes each, color) is a twenty-one-week sales training course which can be used whether you are marketing aardvarks or zwieback.

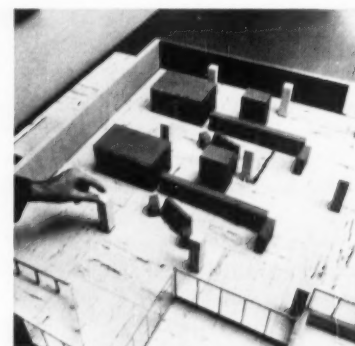
It concentrates attention on such topics as the importance of positive thinking, overcoming sales resistance, price complaints, call-back techniques, and of course, closing the sale. An unusual feature of this series is the "cheesecake" which keeps salesmen on the edge of their chairs waiting for the next frame.

The complete series sells for \$500 (discounts for quantity purchases) and comes with several long-play-

ing records. Sales Training Aids Company, 53 East 34th Street, New York 16, N. Y.

The Visual Road to Sales (15 minutes, color, sound slidefilm) was produced to help salesmen make better use of printed visual selling tools such as loose-leaf books and flip-charts. It is designed to overcome the inertia of some salesmen against incorporating new material into their selling stories and to demonstrate the tricks of the trade in using visuals. The film is available for \$75 (including long-playing record) from a sales training agency, Porter Henry and Company, Inc., 507 Fifth Avenue, New York 17, N.Y. Also available are a guide and complete plans for a training session to be built around the film.

Data and Decision (four sound slidefilms, 75 minutes, color) is the most comprehensive and up-to-date film treatment of electronic data



processing—a subject which is probably better presented on a slidefilm than through motion pictures. This complete training program (it includes a conference kit and long-play records) requires no prior knowledge of the technical side of office automation and is aimed primarily at audiences of middle and top management. The first and most basic of the four slidefilms is particularly recommended for employees who may be apprehensive about the coming changes in the office. Among the topics treated are the nature of the computer, the feasibility study, and actual and possible applications, along with several examples of such frontier techniques as operations research. The complete outfit sells for \$110. Visual Education Department, American Management Association, 1515 Broadway, New York 36, N.Y.

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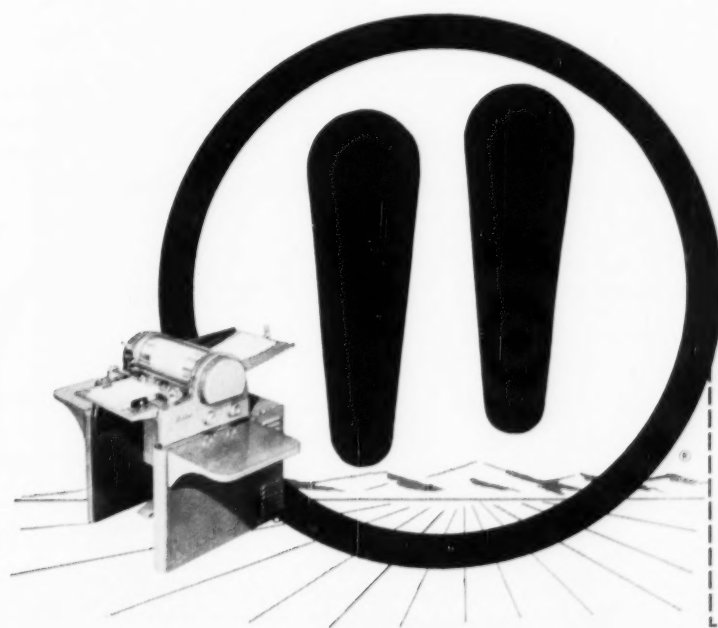
5. Reuse the same master for successive copy runs.

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SIX STANDARDS FOR EXECUTIVE CONDUCT

Continued from page 42

that may lead to trouble. An executive must be fair, which means he must be just, and justice is not always kind.

Perhaps the strongest instrument an executive can develop in dealing with people who look to him for leadership and support is the personal standard of kindness well seasoned with the salt of intelligence. In avoiding the abuse of his power, an executive must not let his associates down. If he supports them, they will support him. If he works with them, they will work with him. He must correct their shortcomings, but only in *camera*. He must give praise when it is due, and bestow rewards honestly and within applicable company standards.

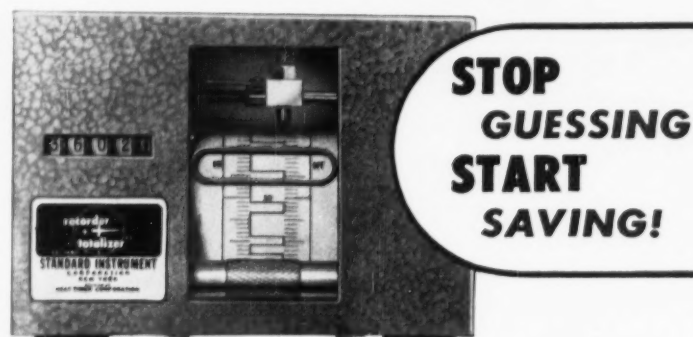
Co-operation

The word "co-operation" is commonplace in the vernacular of corporate living. I always equate co-operation with willingness, which connotes to me a quality of great significance with respect to the

more important problems of general administration in a large business organization. "Co-operation" must be listed as a Personal Standard of Operation.

Co-operation or willingness starts as a state of mind and evolves into a method of working with people. It is vital in bringing together the co-ordinate branches of a business into a consistent and smoothly functioning unity. In this area, it is necessary for an executive to be able to compromise and to give ground while still supporting his basic thesis. This is a healthy attitude which guards against doctrinaire thinking and the *idée fixe*. This attitude helps in the recognition of another man's problems and of his right to his own particular point of view.

One must be willing to listen to one's associates thoughtfully and carefully. It is an observable weakness of business meetings that there are those present who are so busy thinking what they are going to say that they fail to listen to what oth-



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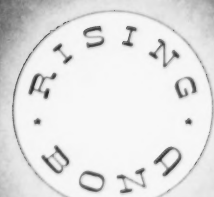
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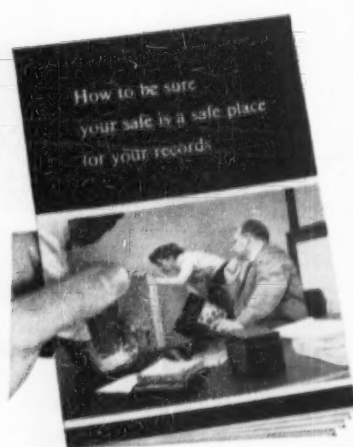
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ers are saying. Many problems in business have to be talked out in a broad way before a sound decision can be reached. He who must make the decision based on the facts adduced by a meeting of executives will decide better if he believes that all the facts have been presented and the arguments pro and con have been fully, fairly, and honestly given.

A co-operative man can live in a modern business; an unco-operative one, even though he may be blessed with many other virtues, is always something of a problem. For completely successful integration within a company relationship, the executive must learn to get along with people in the give-and-take of business life. He must learn to "take it" and rise above "giving it." He must learn to listen and absorb. He must learn that he cannot always win an argument and when he has lost one, he must learn to take his loss without meanness of spirit.

Loyalty

Loyalty is an ethical imperative in corporate life, and accordingly, must be established as a Personal Standard. Loyalty is a fundamental quality; it ranks with honor, charity, and justice. It has won battles, when all was lost. Without loyalty, no organization can be truly effective or perform in terms of its real capabilities. It is my belief that the mediocrity of some American business organizations is as much the result of an absence of loyalty among the executive staff as it is poor planning or faulty policies of management.

Loyalty is generally defined as the act of "bearing allegiance to constituted authority." This definition is highly relevant to all business organizations, for in each of them there is a constituted authority or chain of command. In the realm of policy and decision, business works on the basis of informed and reasoned authority—not by majority rule. Ultimately, democracy appears in the picture through the ballots of the stockholders. If the authoritarian decisions of management are wrong, as revealed by the income account and balance sheet, the stockholders can eliminate the ineffectual executives. This they can do through the exercise of their franchise, which

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is a perquisite of their ownership of the corporation.

Every executive is aware of what the constituted authority of his company is, as well as of his unit, department, or division. An executive who cannot bear allegiance to the constituted authority is obviously in a conflicted condition which prevents him from being loyal to himself or his organization. Too often, executives compromise their principles by remaining with an organization to which they cannot be loyal, in the basic sense of the term. This is a completely untenable way of life for both the individual and the company. Since it is generally impractical to reconstitute existing authority to cope with a problem of individual disloyalty, the individual so involved can only solve his problem by seeking another constituted authority to which he can give his loyalty.

The Personal Standard of Loyalty imposes allegiance upon an individual to a designated superior. Fundamentally this allegiance is necessary to preserve essential order throughout an organization. Without it, the principle of executive responsibility could not exist. Organizational anarchy would prevail.

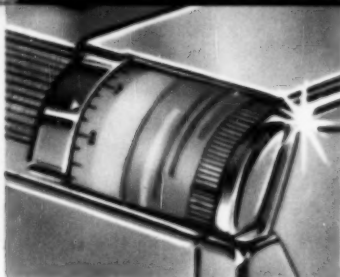
Humor Needed

In subjecting himself to preconceived standards of conduct, an executive who can do so with a sense of humor can add additional meaning and zest to his career in corporate living. By a sense of humor, I mean a sense of proportion, a quality of warmth in relationship, and an ability to be joyous or solemn as the case requires. It has nothing to do with telling jokes, or laughing at people.

THE END



"Yes Sir . . . one or twenty-five?"



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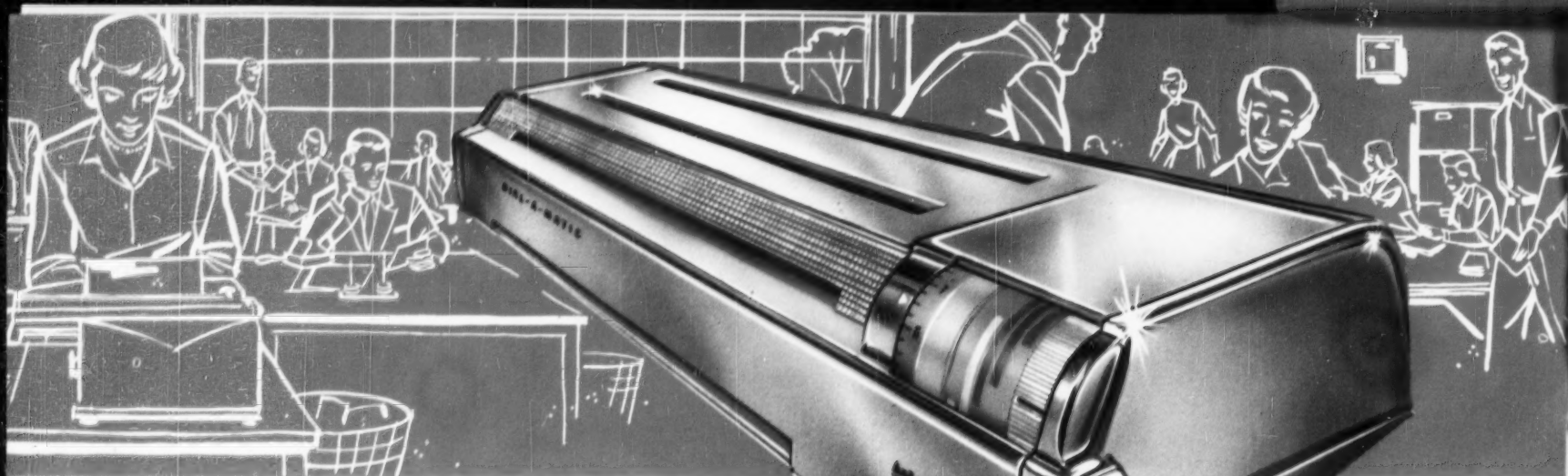
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The pulsating, high-powered sound waves that got their first big industrial job as a means for detecting flaws in metal parts are now branching out into the wood, textile, chemical, food, and petroleum fields. They're finding new jobs in metalworking too.

Ultrasonic soldering irons make it easier to join hard-to-wet metals like aluminum and silicon.

Ultrasonic parts-cleaners remove fluxes and lubricating oils quickly

and efficiently—even from complex parts. The ball bearing cleaning system pictured on page 130 is a good example. Devised by Murdoch Laboratories Division of the Blackstone Corp. for Sperry Gyroscope, this cleaning system is said to be faster, more efficient, and safer for the product than any method previously used.

In the casting of metals, ultrasonic agitation can help remove gases, and ultrasonic units also promise to aid plating, pickling, and descaling. Ultrasonic machine tools are being used to cut and grind tool

steels, carbides, glass, and ceramics.

Banks and museums can have ultrasonic burglar alarms.

In a plant making cardboard containers, an ultrasonic viscosity-measuring device controls the flow of ink in Rotogravure printing.

Textile researchers find that agitation of dye baths by high-powered sound waves promotes dye penetration.

Similar equipment, according to a recent Navy report, may help in water-repellent treatment and impregnation of wood.

In the plastics industry high-pow-



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Cincinnati, O. Main 1-3436	Pittsburgh, Pa. EX. 1-3223
Cleveland, O. TO. 1-1991	Portland, Ore. CA. 2-2332
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Detroit, Mich. WO. 3-9510	San Jose, Cal. CV. 7-5768
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Fort Worth, Tex. ED. 2-2535	St. Paul, Minn. CA. 4-3394
Grand Rapids, Mich. GL. 9-0324	Syracuse, N. Y. 3-2102
Houston, Tex. CA. 2-7785	Tacoma, Wash. Fulton 2188
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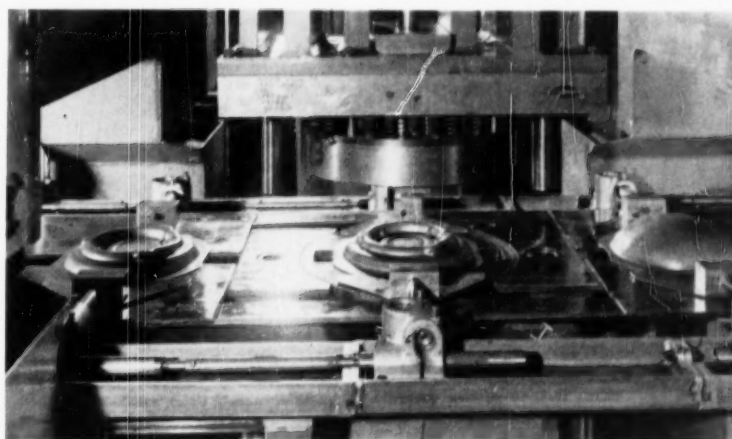
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They draw together

Four separate Clearing presses, tied together by conveyors and controls, become an integrated transfer machine, yet preserve production-line flexibility (see March, page 43). The integrated set-up includes one 275-ton press and three 600-ton machines, has an automatic stack feed, reciprocating transfer feed fingers, and a flip-over device. Cycling is automatic, and there is a safety circuit which will shut the system down if any operation fails to take place within 15 seconds of the time allotted to it. The presses shown here will produce auto disc wheels for Dunlop Rim & Wheel. As Clearing Machine Corporation, division of U. S. Industries, Inc., points out, similar set-ups could be devised for home appliance parts, and other mass-produced units. The upper photograph is a close-up of the dies in one of the presses. Below is the complete line. Each machine can be run independently, and can be relocated if necessary.



"Wrong?" The Sales Manager seemed incredulous.



The Credit Manager was amused

"The next item I'd like discussed," said the President, "is a proposition Sales has received. Will you explain, Joe?"

The Sales Manager was almost too eager. "It's Apex Corporation," he said. "I've been trying to crack them for years. Now, we've got a chance, not just for an order, but for a continuing contract." Rapidly he outlined the details.

"Mmm, our profit ought to be pretty good, and the sales expense would be negligible. But—" and the Treasurer paused to emphasize his next point—"should we risk having so many eggs in one basket? That is, if something should go wrong."

"Wrong?" The Sales Manager seemed incredulous. "What could possibly go wrong? They're one of the biggest firms in their field, and—"

"Just a minute, Joe," the President interrupted him. "That's all very well, but things do go wrong, even with top-rated firms."

"But, sir," the Sales Manager seemed almost anguished now, "this is the opportunity of a lifetime."

The Credit Manager cleared his throat. "I'd like to suggest—" he was amused at the suspicious glance the Sales Manager shot his way—"that we consult American Credit Indemnity about Credit Insurance on this. After all, they insure all of our other accounts. They'd be glad to advise us."

"Good idea," The President rose. "In the meantime, Joe—" he turned to the Sales Manager—"have the Legal Department look at that provisional contract, while Ralph is checking about Credit Insurance. Might as well get all the loose ends tucked in. We'll meet as soon as Ralph has something to tell us."

"Gentlemen," said the President, "Ralph has already given me his report of a consultation with American Credit Indemnity. It's

good news, I think. They're willing to issue a separate policy to cover the Apex account up to 150 thousand dollars."

"A year?" The Sales Manager seemed about to burst with suppressed wrath. "Why, that's—"

"No, no, Joe!" the President soothed him. "That's for the total outstanding at any given time. It's more than enough to cover the contract deliveries."

"Then we can go ahead with it?" the Sales Manager's spirits rose with a rush.

"We already have," said the President dryly. "I okayed the contract this morning."

The Credit Manager was even more amused this time to receive a look of sheer gratitude from the Sales Manager. In return, he winked and nodded sagely. At this rate, he thought, Joe and I might even end up as boon companions—and he sternly resisted a temptation to laugh out loud.

Harmonizing Credit-Sales relations, as told above, is only one among the 12 major benefits of Credit Insurance. For your copy of a booklet, "A Preface to Profits," write American Credit Insurance, Dept. 50, First National Bank Building, Baltimore 2, Maryland.

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NEW METHODS AND MATERIALS... continued

ered sound waves may not only indicate the degree of cure achieved in processing a specific batch of resin; but may also prove useful in promoting polymerization.

The term "ultrasonic" actually covers a broad range of frequencies and at least two basic types of applications. (See October 1953, page 48).

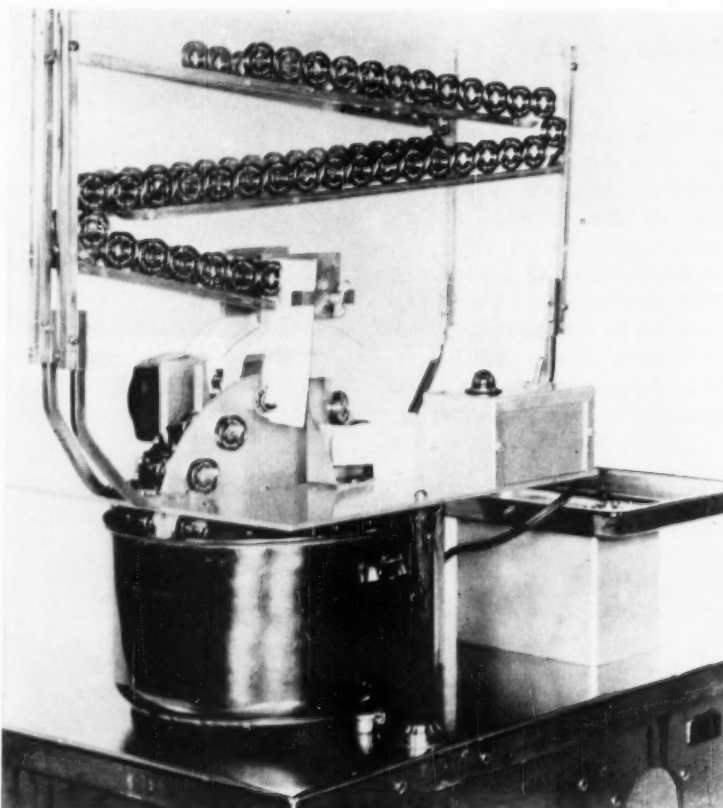
In flaw detection, and in such devices as the burglar alarm and

the flowmeter, the use of sound waves is based on the differential reflection or absorption of these waves by different materials or different amounts of material.

In the flowmeter, for instance, two beams of sound waves are directed diagonally across the stream being measured, one upstream and one downstream. Since the faster the liquid flows, the greater the number of pulses received on the



Fluxless soldering is possible when high-powered sound waves are used to promote wetting of metals. This ultrasonic unit is made by Aeroprojects.



Ball bearings are cleaned rapidly and efficiently and parts damage is held to a minimum in this ultrasonic setup devised by Murdoch Laboratories.

downstream side, rate of flow can be measured and controlled with a high degree of accuracy.

In mixing, cleaning, machining, and soldering, it is not so much the absorption of sound waves as the agitation created by them that is important. The extremely rapid vibrations which can be produced by ultrasonic transducers, and the cavitation effect which accompanies them, helps remove scale and dirt, improves penetration of dyes and resins, and "cuts" carbides and ceramics by forcing an abrasive slurry against the surface of the material.

Ultrasonics is still a new technique, and much remains to be learned about its application to specific industrial jobs. But it's worth investigating right now. More than a dozen concerns make general-purpose mixing, cleaning, and testing units; and at least a dozen more offer special-purpose ultrasonic devices like flaw-detectors, burglar alarms, flowmeters, hops-extractors, and chocolate-homogenizers (see March 1954, p. 104; and April 1955, p. 75).

A list of equipment-makers will be supplied on request.

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That's the goal at which the Army Quartermaster Corps is aiming—and the other services are not far behind.

Fortunately, the military services are doing a lot more than just demanding better performance in this and other respects. For instance, the QMC, through its Food and Container Institute, is sponsoring major research programs on performance of materials at both high and low temperatures and is making research results available to industry.

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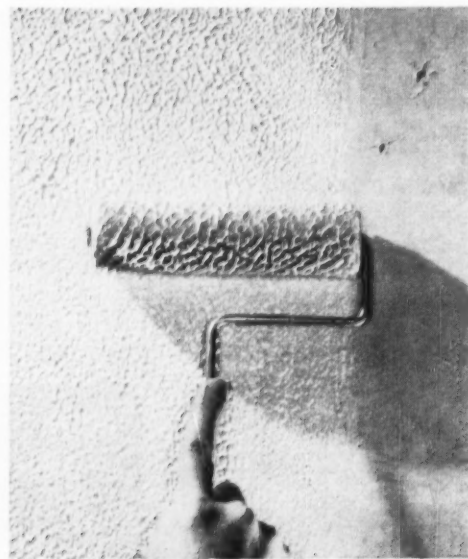
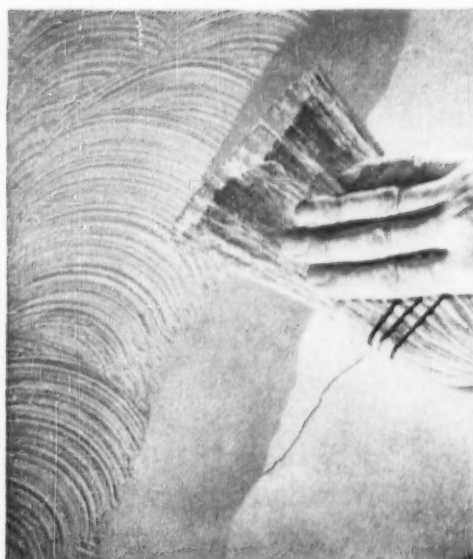
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Based on **BAKELITE** Vinyl Acetate Latex WC-130...
TRADE-MARK

"Three-dimensional paint

hides cracks, dents, and nail holes with colorful texture finish that washes easily, lasts for years"



Unique design effects are achieved with this **Reardon Company** product by texturing the surface as it dries with such everyday implements as a whisk broom, sponge or roller.



Here's a remarkable finish that "resurfaces and redecorates" in one quick coat...straight from the can. Called "Dramex" Ready Mixed Paint, it's made by The Reardon Company, St. Louis, Mo., based on **BAKELITE** Polyvinyl Acetate Resin Latex WC-130.

The superior qualities of this latex are in large part responsible for the excellent performance of this interior paint. As the manufacturer credits it, "this liquid paint-and-plaster combination dries fast, forming a hard resilient surface that resists scrapes and bumps. It fills and hides cracks in

plaster . . . the dents and seams of wallboard construction. There are 12 modern colors, and it is virtually odorless."

★ ★ ★ ★

BAKELITE WC-130 is only one of many **BAKELITE** Brand Resins for coatings. For building interiors and exteriors, for equipment and machinery, for appliances and other products—for resistance to acids, alkalis, alcohol, oils, grease, corrosive atmosphere and weather extremes—coatings based on **BAKELITE** Resins do a superior job. For our free booklet, "BAKELITE Resin Coatings for Industry," write today to Dept. OB-42.

BAKELITE Vinyl, Polyethylene, Phenolic, and Epoxy Resins and Styrene and Vinyl Acetate Resin Latexes for coatings on paper, foil, film, metal, wood or masonry.



BAKELITE COMPANY, A Division of Union Carbide and Carbon Corporation **UCC** 30 East 42nd Street, New York 17, N. Y.
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Methods and Standards for Containers, and Storage and Handling of Semipерishable Subsistence Items are a gold mine of information even for those who have nothing to do with food processing or container specifications. The former, for example, gives K-factors and water-vapor-permeability figures for a dozen materials, and the low temperature toughness of half a dozen plastics films. It also tells how to build cold test chambers.

The report on Storage and Handling has an extremely interesting series of maps showing where in the world temperatures above 110° Fahrenheit are encountered—and how often; and what the highest recorded temperatures in various spots have been. (For most of our own Middle West, the record is 120 to 125°; but a few spots in the South West have gone over 130°.)

In brief

For glues, coatings, paper and textile sizes, Corn Products Sales Company, 17 Battery Place, New York 4, N.Y., is offering a series of water-soluble materials which, it says, have adhesive properties similar to high-solubles dextrins and gum arabic, are compatible with other water-soluble products of this general type, and have good clarity and stability. Known as *Argo Polyoses*, the materials are made in four grades, for adhesive ingredients in

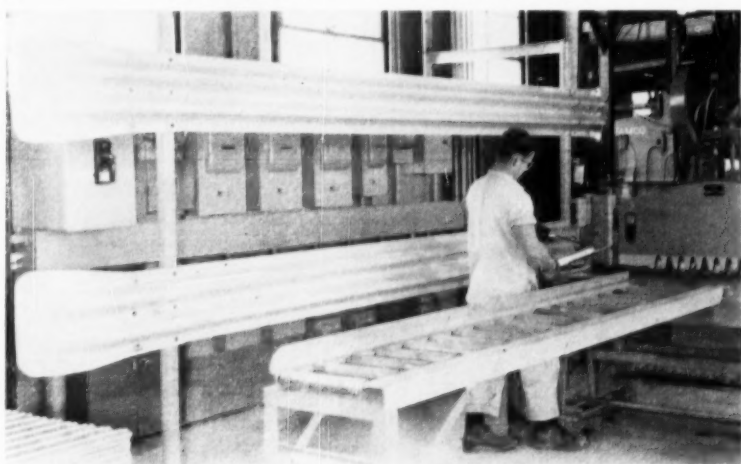
paper laminating compositions, as extenders for more expensive water-soluble adhesives, and for stabilizing the viscosity of dextrans and starches.

New radiation barriers to protect against atomic fall-out, and for use in handling radioactive isotopes, include bricks made of rice hulls and concrete walls containing ferrophosphorus. The rice hull bricks, considered primarily for civil defense use, were developed at Louisiana State University. They're half soil, half rice hull ashes, plus a little emulsified asphalt, and are said to have a higher insulation value than many commonly used materials.

Use of ferrophosphorus in concrete for nuclear reactors and radioisotope processing cells is suggested by Victor Chemical Works. According to Victor, ferrophosphorus-containing concrete can be made almost twice as dense as ordinary concrete (290 to 300 pounds a cubic foot, as compared to about 150), and will resist acids and oxidation. It can be mixed in standard equipment.

Permanent magnets—cast, sintered, and formed—are clearly outlined in a new booklet that also contains a brief glossary of magnetic terms. It's *Manual Number Five*, free from Indiana Steel Products Company, Valparaiso, Ind.

More New Methods on page 134



From Highway to Machine-way

A well-known road safety device boosts plant safety at Armco Drainage & Metal Products. Armco's Flex-Beam guardrail, widely used on the nation's highways, is here installed to protect electrical control panels from damage—and protect the worker from the con-

trols. Advantage of pre-formed guardrails over home-made barriers is, of course, ease of installation, and the smooth contours that keep the worker from being injured by the very safeguards set up to protect him. Armco's main plant is at Middletown, Ohio.



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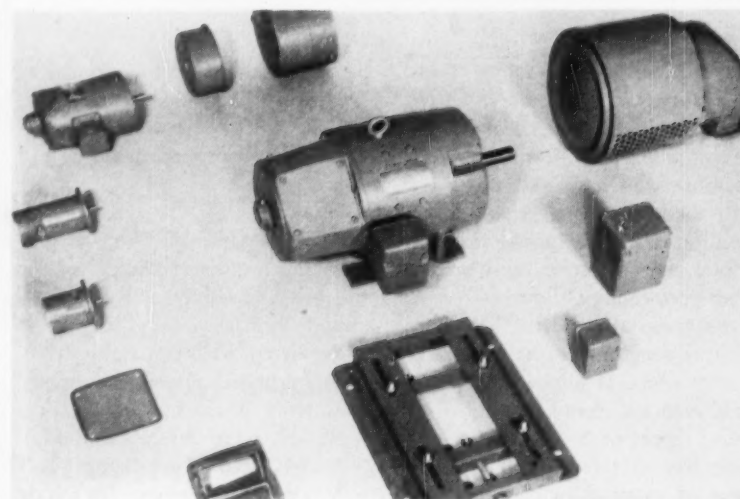
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Adaptability of new *Kinamatic* motors is boosted by accessories like these.

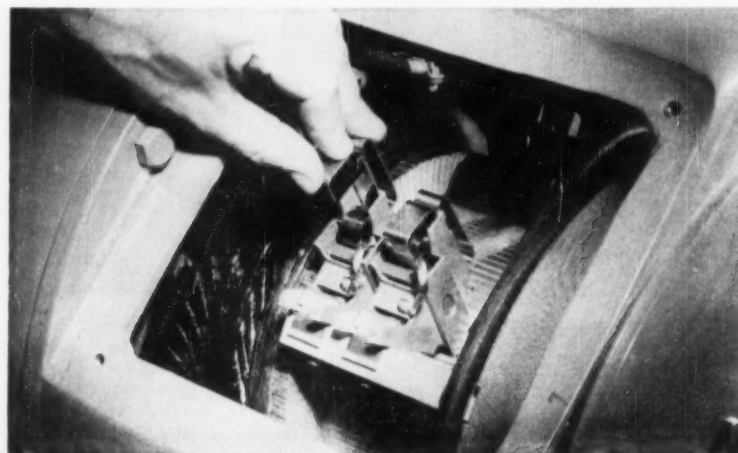
Maintenance-minded motors

Ease of maintenance is only one
of many desirable features **General
Electric** has tried to design into its
new *Kinamatic* line of DC motors.
But it's an important one, and the
hand-sized access holes, unitized de-
sign of carbon brushes, and clearly-
labeled electrical leads are features

that users will welcome. In addi-
tion, GE has designed its motors to
accommodate a wide variety of ac-
cessories (photograph above) and
thus get around the need for special
—and higher-cost—machines for
many industrial jobs. Photographs
below show maintenance features.



Conduit boxes may be mounted on either side of motor; are designed to be
waterproof, yet easy to open. Leads are numbered for rapid identification.



Large hand hole provides access to *Kinamatic* motor commutator. Spring-
mounted brushes can be removed, without disassembling motor.

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*For the new Micro-Twin
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Ask any new user of up-to-date Burroughs microfilming, and he'll make no bones about it. The reason he now microfilms (the reason you can, too!) is that Burroughs offers *everything* you need at a price *easily* within your reach.

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All of which adds up to the fact that certainly you can afford to microfilm! Call our nearby branch office. Ask to see the fabulous Micro-Twin or, if you prefer, the low-cost Model 205 Recorder and separate Model 206 Portable Reader. Burroughs Corporation, Detroit 32, Michigan.

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"Burroughs" and "Micro-Twin" are TM's

The Business Quiz

Trademarks are the symbols by which business lives. They are in the limelight this year of the diamond anniversary of the first Federal trademark law. What do you know about these powerful tools of merchandising? You may think you're lucky if your trademark has become a household word, but in reality you may be in danger.—Thomas C. Kenny

Your Score	90-100 Genius
	75-89 Expert
	50-74 Average
	0-49 Tyro

Questions 2, 5, and 14 are worth ten points each. Questions 7 and 11 are eight points each; all the others are six points. The answers are on page 157.

1. Just what is the difference between trademark and trade name?

2. Can you recognize a trademark when you see it? In this list check the ones which are valid trademarks:

- | | |
|--------------------------------------|--------------------------------------|
| <input type="checkbox"/> Escalator | <input type="checkbox"/> Zipper |
| <input type="checkbox"/> Cellophane | <input type="checkbox"/> Ping-pong |
| <input type="checkbox"/> Vaseline | <input type="checkbox"/> Corn Flakes |
| <input type="checkbox"/> Technicolor | <input type="checkbox"/> Teletype |
| <input type="checkbox"/> Deep freeze | <input type="checkbox"/> Farina |



3. Trademarks originated about 100 years ago with the rise of modern business.

- ☐ True ☐ False

4. Which one of these Government offices is responsible for the registration of trademarks?

- ☐ U.S. Government Printing Office
☐ U.S. Patent Office
☐ Register of Copyrights
☐ Federal Trade Commission

5. Here's another list for you to test your powers of recognition. Check those which are now trademarks:

- ☐ Linoleum
☐ Milk of Magnesia
☐ Shredded Wheat
☐ Dictaphone
☐ Band-Aid
☐ Mimeograph
☐ Argyrol
☐ Borax
☐ Kinescope
☐ Nylon

6. Can your product's trademark be used legally by another company in a non-competing line?

7. What were these trademarks originally abbreviations for?

- a. B.V.D. b. Reo

8. The registration of your trademark provides perpetual protection from its usurpation by competitors.

- ☐ True ☐ False

9. Portland Cement is named for Portland, Oregon.

- ☐ True ☐ False

10. Your goal in choosing a trademark should be to seek a word which will become a household word and pass into the language.

- ☐ True ☐ False

11. Can you think of two trademarks which are wholly or partly numerical?



12. Can you name your product or your company after a former President of the U.S.?

13. Your name is Samuel H. Camel. You have every right to market cigarettes under your own name.

- ☐ True ☐ False

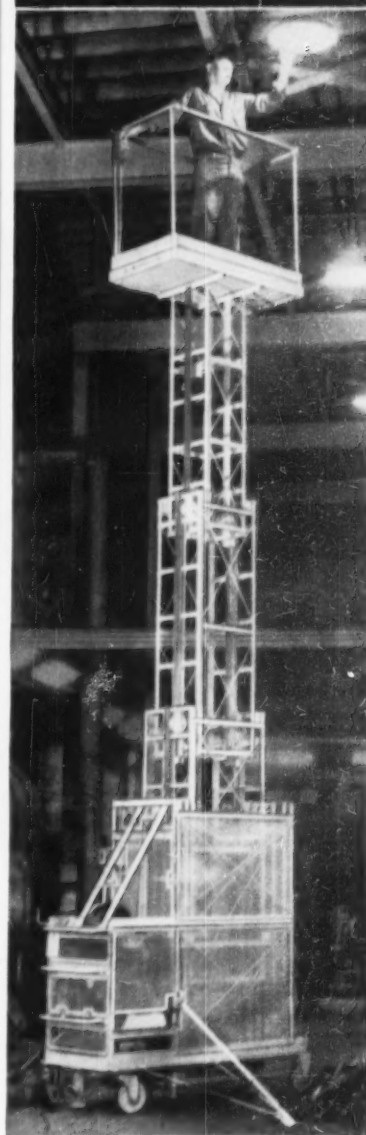
14. You should be pretty good now, so here's another list. Which of these are valid trademarks?

- ☐ Bakelite
☐ Mineral Oil
☐ Victrola
☐ Aspirin
☐ Aerosol
☐ Leatherette
☐ Benzedrine
☐ Mercurochrome
☐ Formica
☐ Comptometer

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Safety is our first consideration in building Hi-Reach Telescopes.

During the past quarter of a century of making Hi-Reach Platform Telescopes, our engineers have constantly improved the mechanical construction to obtain maximum stability, smooth time-saving lifting action, and safety.

Standard Models available from 10'-9" to 35 ft. high, and custom-built units as high as 100 ft. if you like.

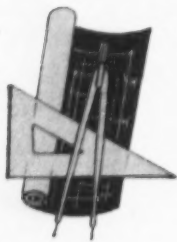
ECONOMY ENGINEERING CO. EST. 1901
 4516 W. Lake St., Chicago 24, Ill.

ECONOMY ENGINEERING CO.
 4516 W. Lake St., Chicago 24

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 Firm _____
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Craftsmen of the 20th Century

No. 14 of a series to introduce you to some of industry's outstanding plastics craftsmen



The artisans of other ages achieved their fame by thoroughly mastering a material. The world continues to celebrate their work in gold and silver, steel and glass and stone.

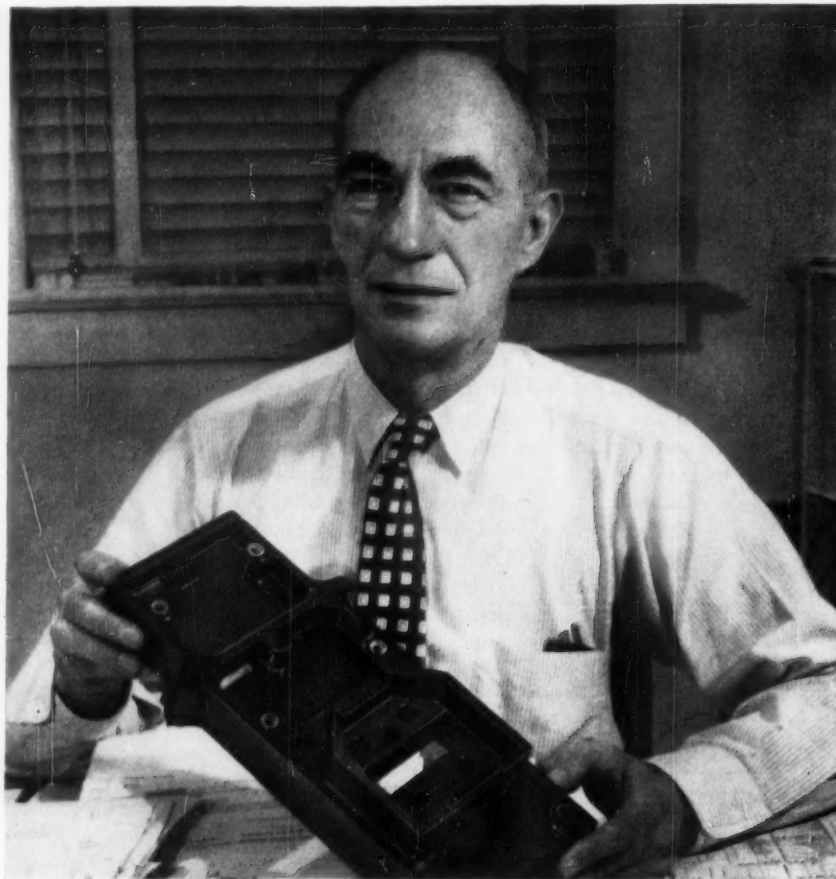
Today, a new family of materials is at hand which is challenging a new school of craftsmen. By devoting their skills to the custom molding of plastics, these men are contributing more and more low-cost articles to serve homes and industries everywhere.

Two of these 20th Century craftsmen are pictured on this page. Monsanto, a major supplier of high-quality plastic materials, salutes these men who are helping mold America's tomorrow.

When your plans call for plastic parts or products, consult an expert custom molder



Stefan T. Edlis, General Die Mold Company, Chicago. Originally a locksmith apprentice in his native Austria, Mr. Edlis has devoted the last 18 years of his life to the craft of tool-making. Since 1945 he has been primarily concerned with the engineering of precision molds for plastics. As Production and Sales Manager for General Die, he supervises the output of 17 presses which run the gamut of injection and compression molding operations. Among his notable contributions to the custom molding industry is the design of new tools which improve the fabrication of intricate molds.



John W. Berthold, American Insulator Corp., New Freedom, Pa. There are few developments in the plastics industry that Mr. Berthold has not witnessed firsthand. His career as a tool designer for American Insulator dates back to 1922. Initially the company specialized in molding component parts for the electrical and automotive trade. Today, its widely diversified production includes radio cabinets, stove hardware, and parts for electrical appliances, air conditioners, television, aircraft, automobile and electronic assemblies.

MONSANTO CHEMICAL COMPANY,
PLASTICS DIVISION, SPRINGFIELD 2, MASS.

MONSANTO

RESINOX

A CRITICAL LOOK



GENDREAU PHOTOGRAPH

at

CONSUMER CREDIT

EDWIN B. GEORGE

*Director of Economics,
Dun & Bradstreet, Inc.*

WE HAVE come a long way from the beginning of institutionalized consumer credit. Loans on furniture, sewing machines, and pianos were as respectable as bombazine and gaiters in their time, long before the big waves in autos and durable white goods. But the springs lay deep in the American temperament, and despite periodic sepulchral findings that points of saturation were being reached in this and that line, so-called flood tides were repeatedly bettered. A modern cynic remarked that the best prospects for growth lay in lines that were just reaching their peak. To the American mind radios are as bread to some other peoples, while co-axial cables and high and ultra high frequency stations are making television another staple.

Credit accommodations have kept pace. At least three kinds of personal debt require recognition in this kind of story: (1) family-type investment consummated through time-payment plans, (2) convenience credit as represented by charge accounts, and (3) personal installment cash loans, which Ernst Dauer of the HFC calls "balance-wheel" or "safety-valve" credit.

To-day one should also add so-called "revolving loans," a type of accommodation that is definitely on the march. The esteemed Malcolm McNair, Professor of Marketing at Harvard, reports that the newcomer is growing strongly at the expense of 30-day (more nearly 60-day in practise) credit while both are crowding cash. A need seems to have evolved for something between charge accommodation and collateral maturities; it costs more, but works the customer into an interest-paying classification. McNair expects the present 50-50 split between credit and cash sales of department stores to be headed toward something more like 80-20.

Now we are into the question of the day. Is

all this nonchalance of consumers about debt getting us into trouble and, in terms of effects, is consumer debt already too high? It is disrespectful not to give some historical figures, although they are not very useful, or are useful only as points of departure for reasoning.

The most popular correlation is between outstanding consumer credit and disposable income, or personal income after taxes. Ratios rising over a period of time are frequently reported with an air of mixed discovery and finality. Nothing could be simpler than the calculations and nothing more arbitrary than to say of a particular ratio that it is too high. Demonstrating the first point, the ratio was 7.7 per cent in 1929; 11 per cent in 1940; 11.8 per cent in 1953; 13.1 per cent at the end of 1955 or double that of 1947. Since the war, for some reason, some virtue has been supposed to inhere in a ratio of around 10-11 per cent. Just before World War II installment debt was 7.2 per cent of consumer income after taxes. Now it is around 10 per cent.

This being the most popular index of health, our criticism had best focus there. Some other simple indexes also have a vogue, however, and they should at least be identified.

Why not merely relate the current volume of outstanding consumer debt to current holdings of liquid assets? We could make ourselves feel better if we did. That ratio is low, considering the suggestion of security in the very sound of liquid assets. From 1947 to 1955 liquid assets owned by families and individuals have grown by almost \$50 billion while their debt has risen by scarcely half that amount. Nevertheless the spread is being cut down, and the debt-asset ratio is also rising.

Where is the danger point? I don't know, but I am sure that if over-all consumer debt ever became a high proportion of this category of

over-all wealth, large numbers of families would be in serious trouble. The national proportion has little reliance for individual cases. More basically, we are measuring an interim accommodation against a fundament of national strength.

Within much the same context, our people have steadily been saving more than they have been borrowing, and the importance of this achievement is not too greatly impaired by the fact that our savings figures are so constituted as to include those of unincorporated businesses as well as of families. It would indeed be hard luck if the aggregate savings of families did not exceed their borrowings. But net personal and business savings are scarcely adequate to-day to meet requirements for capital formation (housing and business investment). This warning applies in part to the item of liquid assets already mentioned.

One could relate consumer credit to national production with some plausibility. But production embraces many kinds of activity, and is volatile both as to aggregate and pattern. For example it includes business investment and inventory fluctuation. We could not tie the special function of consumer financing to this big mixed aggregate with any feeling of security. The same criticism would apply to comparisons with national income. We would be harnessing draft horses and racers to the same wagon.

Some analysts find their scale of tolerances in the debt service burden, combining interest and amortization, to which differently situated families commit themselves. This, however, gets away from simple comparisons of aggregates.

The last measure to be recognized here is the rate of increase in outstanding credit. It is probably the most crucial at the moment and is saved for special treatment.

I said before that the most popular of these

convert RECEIVABLES into CASH



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measures has been the relation between outstanding consumer credit and disposable income, so it should have most of our attention. It was reported also that this ratio had nearly doubled since 1929, and probably now stands above 13 per cent.

What of it? On the strength of aggregates alone, why shouldn't the ratio be what it is, or higher, or lower? An elaborate series beginning with 1945 recently appeared. Why the effort? We can make ourselves look very bad by comparing the current ratio with the one for that year which was so low that I shall not even mention it. For four years consumer durables had virtually been off the market and consumer credit largely frozen.

Economic Mayhem

There are objections on principle to this kind of a comparison anyway. Simple correlation in a growing economy, expressing itself in a flickering pattern of inter-acting parts, are the bane of an economist's life; at least, one of the principal banes. Sidney Rolfe, Economist of the CIT, calls it economic mayhem to compare a flow (disposable income) to a stock (outstanding consumer debt). He has a point, but I prefer to put the matter another way.

[The past just isn't the present with respect to the functions of credit any more than with respect to the strength of stabilizing factors built into the general economy, fiscal and monetary policies, or for that matter the paradox of internal stress in most western lands on personal health and economic security in contrast with the confusions of a stumbling and quarreling world.

There is a different attitude toward debt, more numerous forms of it, a larger number of legitimate uses, and more antibiotics for fevers brought on by excess indulgence. Rationality is no more assured than it was before, and some of the new forms of credit are not as seasoned or well understood as is traditional business credit. But our thinking must begin with acceptance of a new universe.

As to ability to bear debt, family incomes are much higher than before the war even after allowance for the ingredient of inflation. With any rise in national income our ability to service debt rises more than proportionally. The fraction of

income required for subsistence is much smaller and the same ratio of debt to discretionary spending in the two periods could support a considerably higher ratio of debt to total income. Sales of durables have increased fourfold while credit to finance them has merely tripled. Moreover, the percentage of income it is necessary to save might legitimately fall because of the greater protection against contingencies and retirement that is provided to-day, making repayments easier.

Private and public pension funds, surgical and medical insurance, insured and subsidized hospitalization, unemployment and disability compensation, are merely among the innovations that have relaxed men's clutch on their pocketbooks, whether for to-day's cash purchases or to-morrow's amortization.

Favorable Climate

The new atmosphere is congenial to single-payment loans by banks and the institution of revolving credit plans by department stores. Atmosphere itself will not prevent some of the new innovations from going sour—history compels some cynicism in that respect—but they are probably here to stay.

But let us concentrate momentarily on installment selling. Recently I saw a comparison made between ratios in 1954 and 1929. I am not interested in 1929 as a standard. All during the following decade a mild convulsion was taking place in the proportions of goods sold on cash and credit in retail establishments—department, furniture, and jewelry stores particularly. Installment sales were taking over. This adds to the weight of credit outstanding in given stages of a business cycle, but it is partly inert. After a customer becomes accustomed to what he has done, he provides himself with a new mental benchmark. Confidence and fear rise and fall from higher points of equilibrium. So I am not much interested in comparisons with 1929.

Other changes have occurred since the outbreak of World War II, likewise tending to invalidate what went before as a model. Everyone knows that durables have gained steadily as a proportion of consumer spending after the war. When we speak of a rising standard of living that is, in part, what we mean. In 1929 there weren't so

many consumer durables and in 1940 the shadow of black depression and the persistence of gray depression still laid a greater than normal restraint on willingness to contract debt.

Now, at the other extreme, with domestic help becoming mostly a reminiscence to middle class families, they pay installments for labor-saving devices instead of wages. Or they pay for automobiles instead of transportation fares, pooling rides to the office or factory and having most of the automobiles left over for convenience and pleasure that they now very nearly rate as necessities. Also, as long as manufacturers insist on adding attractive gadgets more rapidly than productivity can reduce basic production costs, prices will prevent unit installment debt from declining.

Where to Stop?

In short, it is hard to see how a great deal of growth in installment debt relative to income could ever have been avoided. Therefore it is hard to see where, in absolute terms, it should be stopped. Durables constituted 11.5 per cent of consumer outlays in 1940. To-day they are in the neighborhood of 13 per cent.

If we can learn so little from aggregates, then can clues be found in the changing quality of loans? Here too we seem to draw a blank. The Survey Research Center of the University of Michigan in co-operation with the Federal Reserve Board has consumers income assets and debt positions by size and occupational groups, among other of his attributes, under continuing study. Data are therefore available in considerable detail. They support a recent remark of the Center's Program Director, Dr. George Katona, to the effect that "Installment debt has not been shifting down to the low income groups. It is still predominantly an upper-and-middle income phenomenon."

The overwhelming part of the debt is owed by people with incomes of \$4,000 to \$8,000. These people should not have too much difficulty in meeting their obligation. This finding is supported by the finance companies and other independent authorities. I may add that four out of five of the families in the \$4,000 - \$8,000 group had short-term installment debt. The

head of the family typically is between 20 and 45 years old and the children under 18. It is the phase of the family life cycle in which responsibilities temporarily outrun means. Less than half of the spending units of the country had any short-term consumer installment debt. By units, the size of debt rises rather regularly with size of income. All this seems to be very orderly.

Fixed Charges

According to the Federal Reserve *Bulletin* of July 1954, in the early months of that year, total median monthly payments for fixed charges such as rent, mortgages, property taxes, life insurance, social security, and pension funds were running at about \$60 a month, or 22 per cent of average consumer income after taxes. For only one-sixth of the spending units did the burden climb above 40 per cent.

And early last year, according to the July 1955 *Bulletin*, the scheduled repayments of two-thirds of those with installment debt comes to less than 20 per cent of their disposable income. Most of the remaining third however, were committed up to between 20-40 per cent of their income after taxes, which in case of loss of full-time employment could be catastrophic.

No storm warnings are flying in the delinquency zone. The Installment Credit Commission of the American Banking Association analyzed current delinquencies by type of borrowers and periods of arrearage and found the rate about as low as it has been in a decade. Banks should know, because directly or indirectly, so much of the installment debt comes to rest with them, but the report from all quarters is the same.

The Federal Reserve Bulletin said in December that "The relatively high level of repayments this year (1955) has not been accompanied by an increase in the proportion of installment loans on which payments are delinquent. At commercial banks for example, delinquent loans as a percentage of all installment loans held are very low and may be at their lowest point in a decade.

Lenders are also good risks, economically speaking. On October 31 the commercial banks held 38 per cent of consumer installment credit

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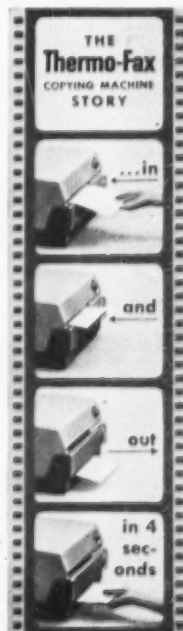
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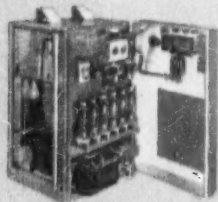
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and the sales finance companies 32 per cent. The share of the finance companies has been rising recently; during the year they accounted for half of the increase in credit outstanding, the commercial banks for nearly a third. Over half of the automobile paper held by the banks was acquired from dealers and nearly half negotiated directly. Commercial banks have also of course been increasing their loans both to sales finance companies and to other normal lenders.

Effect on Money

With regard to frequently voiced apprehensions over the rôle of mounting outstandings in blowing up the money supply, however, a reminder is in order that the finance companies place the bulk of their promissory notes with corporations and other non-bank institutions. The velocity or efficiency of money would thereby be increased with similar although probably milder effects, but not the money supply itself.

The point with which we are immediately concerned is that none of these institutions is likely to be pressured into a panicky calling of loans. However, it would not be easy to sustain the recent rapid rate of rise in credit extension, which is another matter.

Concern has frequently been expressed over the reduction of consumers' equities in installment purchases and a corresponding increase in lenders' risks. Evidence of the seriousness of this risk is not plentiful, nor will this writer enter the debate over the relative merits of collateralized and personal credit concepts of lending. It is evident that as contract terms are progressively liberalized—25 per cent down and 36 months to pay for a new car should be an extreme case—the amount of the loan for a few months may exceed the depreciated value of the collateral. George Hitchings, the Ford economist, said recently that there might be a few instances in which the market value of the car was below the current amount of the loan, but he did not believe there were many.

Even come recession, loans will probably be repaid without much loss. This stress on quality from the lender's view, however, misses a key point. A difficulty as well as an asset is that this kind of security



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could become principally a prior claim on shrinking incomes in recession when the primary need will be to take as much current production as possible off the market.

Danger Limit

By establishing the quality of present outstanding loans we are merely thrown back to the question of whether or not they are too high and too long which is an economic question and not one of integrity or household solvency. Call loans were repaid to the penny in 1929. In 1931-1932 about 85 per cent of outstanding consumer debt is reported to have been liquidated within one year and the balance shortly thereafter with little loss of equity. Even bank loans to finance speculation in raw materials in 1920 were mostly repaid, although many of the borrowers managed it by diverting funds from planned investment until they got out of hock, thereby extending the decline and retarding recovery.

There is never any guarantee that affairs will not take such a twist as to lead to a deterioration in the quality of prior claims themselves. Home mortgages are among those prior claims. Geoffrey Moore, Associate Director of Research in the National Bureau of Economic Research, reported such a development in the 1920's. This is waving a skull, however, as it should not happen now. But A. D. H. Kaplan of the Brookings Institution has concluded that the fine record of repayment in the 1930's was made largely at the expense of current consumer demand. It was not until 1935 and 1936 that the volume of installment paper itself surged upward again. In the meantime other goods had suffered.

Some representatives of the Federal Reserve Bank, delegates of sales finance companies, and bank executives may have read the record this way when they conferred on this subject last August. Particularly as one of the finance companies was sufficiently moved at the time to stress the dangers of cutting down payments to 25 per cent and extending the repayment term to 36 months. In their minds the ability to save themselves through exercise of strong claims on the customer's integrity, fondness for the chattel, and future income and assets, was not altogether equated

with the loosely used concept of credit quality. I can see them also thinking as citizens, in which process they have obviously been joined by many dealers.

More than Quality

This problem goes beyond the quality of individual pieces of paper. The quality of paper now outstanding is good within a technical frame of reference. It was the job of the finance and dealer management to make it so and that job has been done. Those particular individuals are not responsible for the national credit mechanism within which they worked. Perhaps the quality issue would become conclusive only if management's job hadn't been well done.

Aggregate outstandings, either absolutely or in relation to assorted production and income series, have not been of much help to us. Lending standards do not seem to have been lowered in any appreciable degree if one bars the competitive lengthening of maturities and lowering of down payments. Borrowers have been meeting their obligations on or ahead of schedule with no signs of distress, no signs of lack of means.

Our final suspect is the up and down movement that characterized 1955. Some would acquit it also by axiom, saying that debt trends are bound to accelerate when income trends accelerate. At this point one is obliged to balk. The generalization is partly circular, for the step up in volume and velocity of money has itself accounted for some of the rise in national income.

And however this may be, the speed of advance occurring cannot be sustained. During 1955, outstandings rose from 11.7 per cent to over 13 per cent of disposable income—despite the substantial advance which took place in the latter, and the fact that the year-end 1954 figure reflected the strong beginning made on the 1955 auto model year. In absolute terms, the total increase came to \$6.1 billion (around 20 per cent)—the equivalent of about one-third of the huge growth in total consumer outlays during that year of tremendous activity.

When one makes allowance for the additional spending that such expansion makes possible through the increase in incomes to which it gives rise, its contribution to busi-

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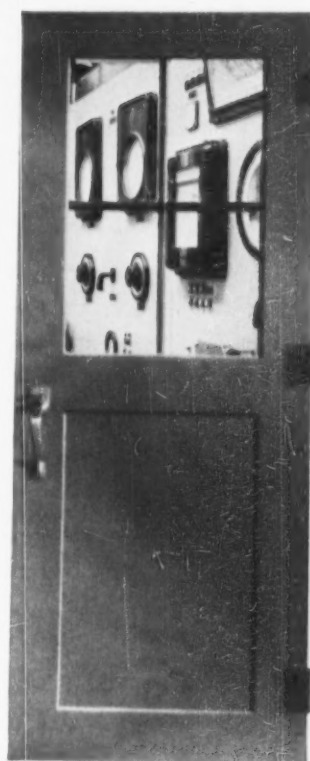
ness in 1955 appears even more impressive. This was the product of a huge rise in sales of durables, particularly cars, coupled with sharp reduction in cash down-payments and stretchouts of maturities, which skyrocketed credit extensions in the forefront of the year and thereafter kept them around the higher level reached, while repayments, reflecting lower sales in 1954, lagged far behind. In effect, we were pledging portions of purchasing power in more distant years to pay for 1955's goods.

Length of Lag

Professor Frankel of Illinois University has estimated that with the pattern of maturities emerging in 1955, the lag in repayments lies somewhere in the range of thirteen to sixteen months.

It will be evident from the foregoing that we can't hope to duplicate 1955 experience in 1956. Even with car sales as high as those of last year and their prices moderately higher, the rate of growth in auto outstandings would have to decline steadily unless average maturities could be further extended—a remote possibility. Barring a substantial increase in auto sales, therefore, or strong jumps in installment purchases of other products, the trend in growth of credit must be downward. Neither of these contingencies is likely to materialize. Instead, it is commonly thought that auto dealers will do well to sell 6.6 million cars (more than 10 per cent less than last year) and the latest Survey of Consumer Finances made by the Michigan Survey Center for the Federal Reserve Board indicates both that purchases of major household durables will be slightly below those of 1955 and that the proportion of such purchases made on credit will decline moderately. If these expectations are realized, consumer credit is certain to show a much smaller rate of increase this year and might even go to the negative side for a short period.

What effect will this have on activity in 1956? Taken in isolation, the effect is bound to be depressing. As in the case of inventories, not only absolute shrinkage but mere decrease in rates of increase of credit have deflationary effects: as repayments rise relative to extensions, a larger percentage of



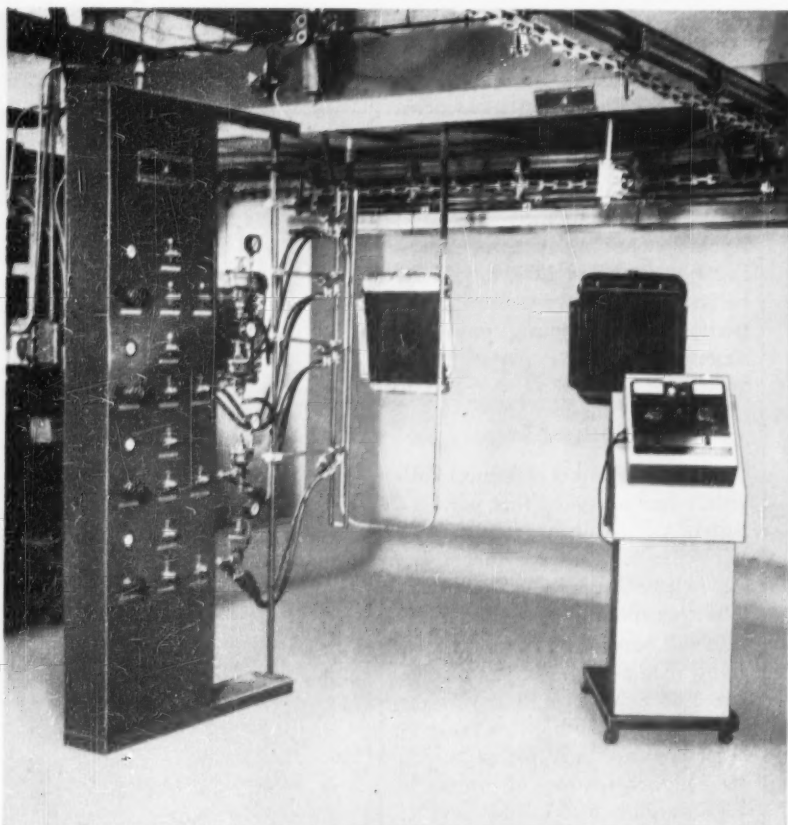
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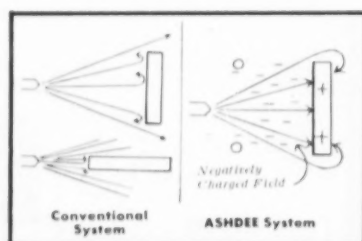
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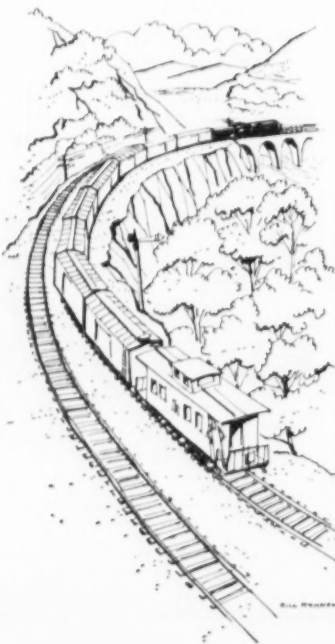
current income is diverted from spending on goods into debt reduction. Moreover, in and of itself the effect could be quite substantial in relation to the kind of cyclical swings in demand we have experienced since the war.

Effects of Credit

Judgments that variations in credit are not important factors in cycles reflect experience during the major depression and don't hold for mild swings. Last year, as noted, directly and indirectly the rise in consumer credit was one of the prime factors accounting for the upsurge in demand. This year other factors will have to strengthen merely to offset its deflationary influence and prove considerably stronger to enable activity to continue its upward movement toward new highs.

None of this means that recession in 1956 is inevitable. On the contrary, the factors working to support demand this year—the strong upward push in business fixed investment, higher government expenditures, and a second-half recovery in housing plus the stimulus of a tax cut that will probably occur before midyear should be powerful enough to outweigh the effect of the major depressants at work—a decrease in the rate of growth in inventories as well as the prospective change in consumer credit. But to do so, these factors have to be as strong as they fortunately are.

THE END



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Commercial Credit reports

CONSOLIDATED net income of the finance companies, insurance companies and manufacturing companies from current operations, after payment of taxes, exceeded \$26,000,000, the largest in COMMERCIAL CREDIT's history. The volume of receivables acquired by the finance companies during 1955 aggregated \$3,677,241,749, compared with \$2,467,968,945 during 1954. The 1955 volume of the finance companies was larger than any previous year in the Company's history.

The outstanding receivables of the finance companies of \$1,247,545,835, were approximately 50% above similar outstandings on December 31, 1954, and were larger than for any previous year.

Gross written premiums of the insurance companies, prior to reinsurance, during 1955 were \$47,056,317, compared with \$33,289,952 for the previous year.

Net sales of the manufacturing companies during 1955 were \$117,992,005, compared with \$113,584,595 during 1954.

Net income per common share was \$5.22 on the number of shares outstanding and was larger than for any previous year in the Company's history, and compares with \$4.86 per share during 1954.

The book value of the common shares has increased \$12.37 during the

past five years, and on December 31, 1955 was \$37.88. During this five year period the Company paid cash dividends of \$58,620,448 on its common shares, and retained \$55,169,440 in the business. Capital funds of the Company on December 31, 1955 exceeded \$190,000,000 which, with \$80,000,000 of subordinated unsecured notes, and \$25,000,000 Junior subordinated notes, provided a base of credit for borrowing purposes of \$295,000,000. The Company held reserves of \$117,500,000 available for credit to future operations, expenses, credit losses and earnings.

We are grateful for the continued use of our facilities by manufacturers, wholesalers, retailers and customers, and the continued support of our stockholders, institutions and others who have provided our operating funds. We appreciate the intelligent cooperation and enthusiasm of the officers and employees in the handling of the Company's operations, which made 1955 the largest earnings year in the history of the Company. The outlook for 1956 for the Company and its subsidiaries appears satisfactory.

E. C. Wareheim, *Chairman of the Board*

A. E. Duncan, *Founder Chairman*

E. L. Grimes, *President*

Condensed consolidated balance sheets as of December 31, 1955 and 1954

ASSETS			LIABILITIES		
	1955	1954		1955	1954
CASH AND MARKETABLE SECURITIES.....	\$ 190 532 645	\$ 132 855 034	NOTES PAYABLE, SHORT TERM.....	\$ 790 319 000	\$ 363 162 500
RECEIVABLES:			ACCOUNTS PAYABLE AND ACCRUALS	49 047 254	41 226 001
Motor and other retail.....	816 989 402	547 831 264	U.S. AND CANADIAN INCOME TAXES.....	30 175 468	25 156 943
Motor and other wholesale ...	225 590 720	110 243 500	RESERVES.....	77 122 671	62 771 971
Direct loan receivables.....	49 628 455	44 493 577	LONG-TERM NOTES.....	171 875 000	184 737 500
Commercial and other receivables.....	156 450 891	132 053 574	SUBORDINATED LONG-TERM NOTES.....	105 000 000	102 500 000
	1 248 659 468	834 621 915	NET WORTH:		
Less: unearned income	63 488 898	40 720 083	Common stock.....	50 155 161	49 852 961
reserve for losses	16 385 073	12 448 330	Capital surplus.....	28 515 984	27 910 552
Total receivables, net..	1 168 785 497	781 453 502	Earned surplus.....	111 344 792	98 484 681
OTHER CURRENT ASSETS..	27 791 421	22 231 596	Total net worth	190 015 937	176 248 194
FIXED AND OTHER ASSETS	18 449 923	15 174 820		\$1 413 555 330	\$ 955 803 109
DEFERRED CHARGES	7 995 844	4 088 157			
	\$1 413 555 330	\$ 955 803 109			

A few facts as of December 31, 1955 and 1954

	1955	1954		1955	1954
Gross finance receivables acquired	\$3 677 241 749	\$2 467 968 945	Net income before U.S. and Canadian taxes	54 197 240	45 391 721
Gross insurance premiums, prior to reinsurance	47 056 317	33 289 952	Less U.S. and Canadian taxes on income	28 012 310	21 162 948
Net sales manufacturing companies	117 992 005	113 584 595	Net income of		
Gross income—finance companies	\$ 85 124 940	\$ 75 395 990	Finance companies	15 628 251	13 949 782
Earned insurance premiums, etc.	38 663 845	43 159 339	Insurance companies	5 877 336	7 215 929
Gross profit—manufacturing companies	17 958 054	13 957 241	Manufacturing companies ..	4 679 343	3 063 062
Investment and sundry income ..	3 488 899	3 095 755	Total credited to earned surplus	\$26 184 930	\$24 228 773
Gross income	145 235 738	135 608 325	Common shares outstanding, end of period	5 015 516	4 985 296
Total expenses and reserves, etc.	66 116 446	67 330 721	Common stock per share		
Interest and discount charges ..	24 922 052	20 602 557	Net income	\$5.22	\$4.86
Provision for past service benefits under amended retirement plan		2 283 326	U.S. and Canadian tax on income	5.58	4.24
			Dividends	2.65†	2.60
			Book value	37.88	35.35
			Interest and discount charges—times earned	3.17	3.31

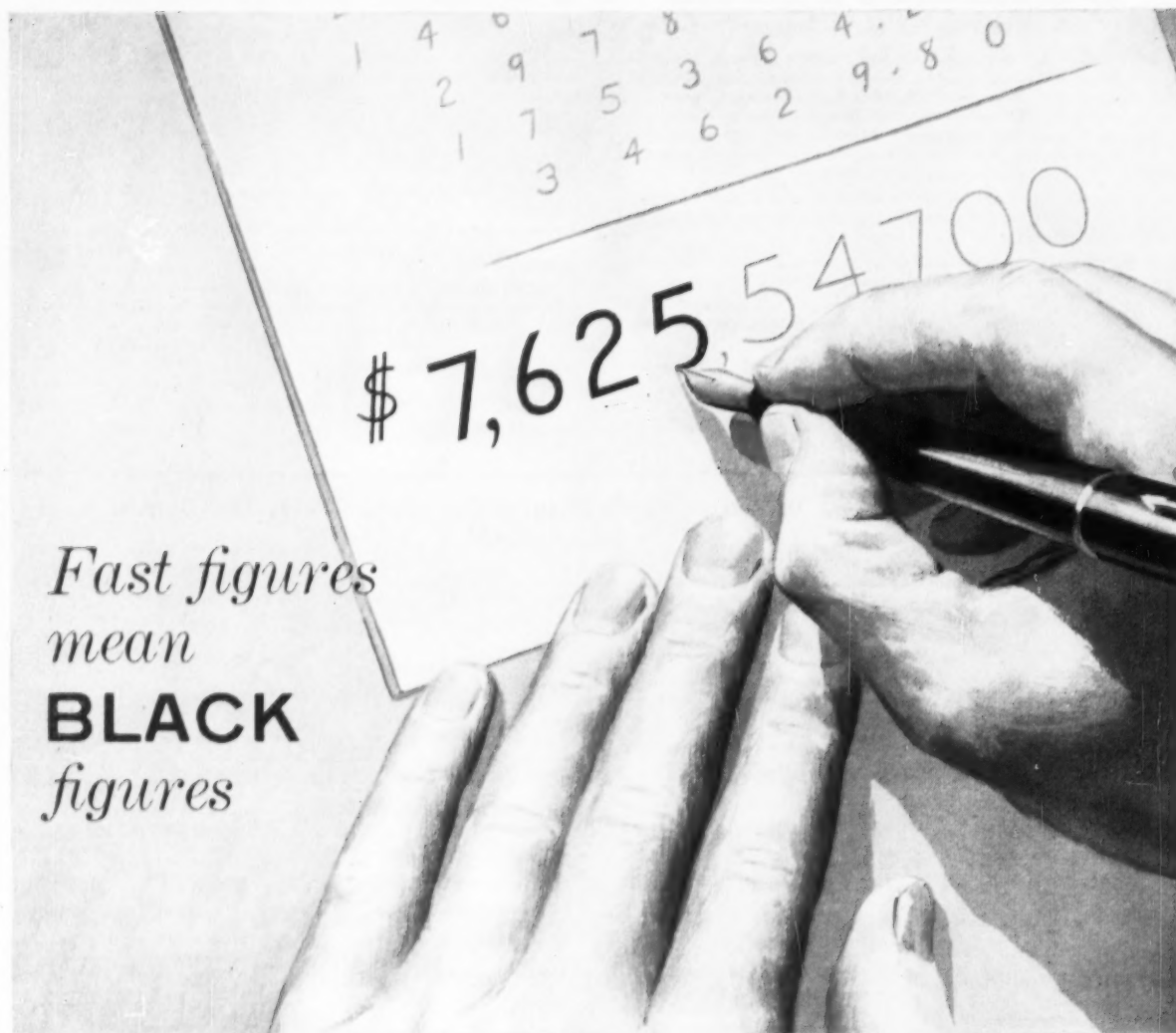
†Dividend increased to annual rate of \$2.80 from October 1, 1955



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SUMMARY OF RESULTS

Six Months Ended January 31st	1956	1955
Income from Sales of Products, Services, etc.	\$46,862,425	\$39,387,250
Net Profit after Depreciation but before Federal Taxes on Income	\$ 6,398,823*	\$ 2,542,247
Provision for Federal Taxes on Income	3,213,324	1,277,317
Net Profit after Depreciation and Provision for Federal Taxes on Income	\$ 3,185,499	\$ 1,264,930
Earned per Share—Common Stock (1,535,074 Shares)**	\$1.96	\$.71

*Includes non-recurring income of \$378,644, resulting from an award in litigation.

**After giving effect to the issuance of 191,884 additional shares of Common stock in February, 1956, pursuant to a rights offering which expired February 15, 1956.

(Subject to year-end adjustments and audit)

Executive BOOKSHELF THOMAS KENNY

Oil Wells that End Well

VENEZUELA SOWS ITS PETROLEUM by Wayne C. Taylor and John Lindeman. National Planning Association, 1606 New Hampshire Avenue, N.W., Washington 9, D. C., 72 pages, illustrated, \$1.50.

This generously illustrated book (see pictures below) records the success story of the Creole Petroleum Corporation in Venezuela, the largest American investment in any foreign country. More than half of the total income of the parent company, Standard Oil (N.J.), comes from Creole which alone produces in Venezuela almost as much oil as in all of the U.S.S.R.

But even more spectacular is the story of the way the American living standards are being exported to Venezuela. Not only are oil workers paid close to U.S. scales but in addition more than half of the income of the oil companies is taken by the Government which plows it into hospitals, schools, roads, and other improvements. A rich new market for many U.S. consumer goods is fast developing. Last year more than \$1 billion worth of such goods was imported into Venezuela.

A more complete and scholarly work, *The Creole Petroleum Corporation in Venezuela*, also by economists Taylor and Lindeman, is also available from the NPA for \$1. In addition a new 16mm. motion

picture, *People and Petroleum* (26 minutes, b&w), produced by Creole, can be borrowed free from Sterling-Movies, USA, 205 East 43rd Street, New York 17, N.Y.

Help for Site Seekers

ECONOMIC GEOGRAPHY OF INDUSTRIAL MATERIALS, edited by Albert S. Carlson. Reinhold Publishing Corporation, 430 Park Avenue, New York 22, N. Y., 494 pages, \$12.50.

This lavishly illustrated volume provides valuable background reading for plant site seekers. It gathers together the research results from more than a score of experts on the essential ingredients needed in various industries. Besides assessing the factors which decide location in many industries, it provides detailed data on the sources of raw materials and a bountiful bibliography for further research.

Distressed Descendants

PROSPERITY BEYOND TOMORROW by Samuel H. Ordway, Jr. The Ronald Press Company, 15 East 26th Street, New York 10, N. Y., 208 pages, \$3.

During the past few years crystal balls have been considerably clouded by the hot breath of marketers eager for the golden future. In this new provocative volume, conservationist Ordway departs somewhat from the prevailing pattern of pros-

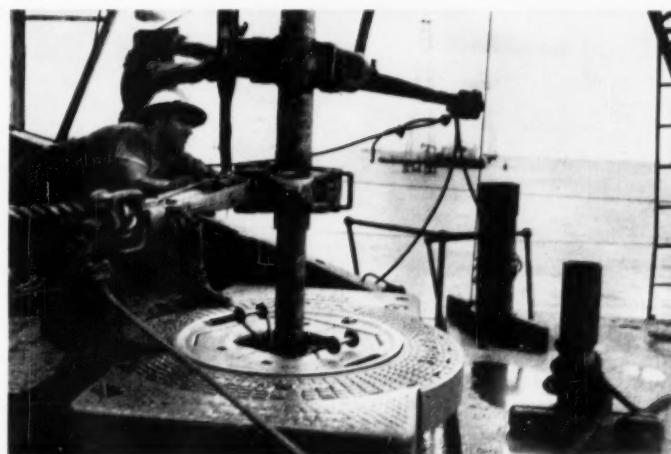
perity prognosticators in looking not to 1965 or even 1975. Rather, he catalogues the problems which our grandchildren will face seven decades from now.

He agrees with most seers that raw materials will be sufficient for industrial expansion in the immediate decades ahead but he sees serious shortages beyond to-morrow. The other problem which the author envisages is not a shortage but rather a plentitude—an excess of time for the working population when automation takes over.

New Approach

GROUP-CENTERED LEADERSHIP by Thomas Gordon. Houghton Mifflin Company, 2 Park Street, Boston 7, Mass., 366 pages, \$6.75.

Some companies are spending considerable effort in seeking new patterns of leadership and better approaches to human relations. The author of this new book, a consulting psychologist, offers this prescription for some of the inadequacies in present-day human relations. It calls for centering decisions and responsibility with a group rather than with one particular leader—a most pronounced departure from the pattern at the present time in business and industry. Among the putative advantages of this method are its ability to evoke the full cre-

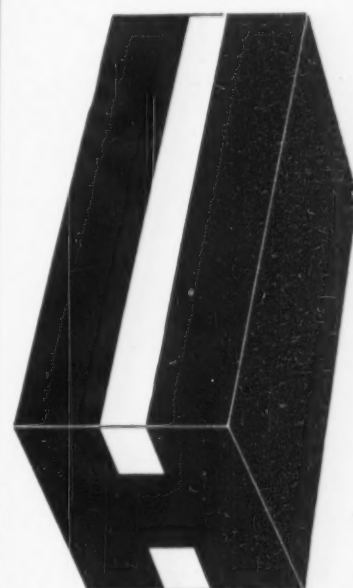


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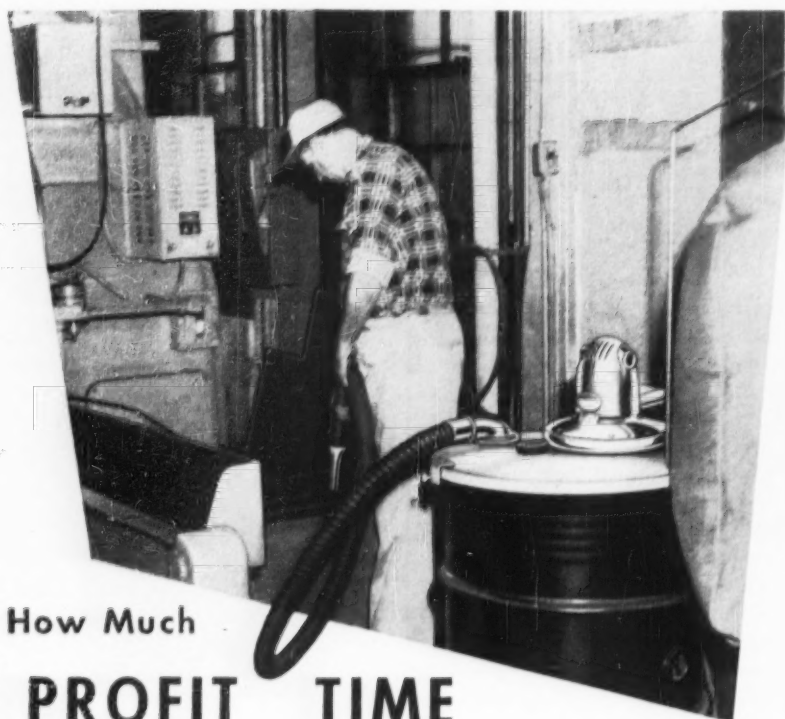
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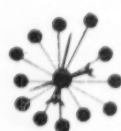


How Much

PROFIT TIME

is sump cleaning costing you?

Vascoloy-Ramet Corporation saves 2½ hours
"PROFIT TIME" for each machine by using a



TORNADO

JUMBO VACUUM CLEANER
to clean out sumps.

Stop for a moment! How many machines using coolants do you have in your plant? Multiply that figure by the time required to remove cutting oil and sludge from each sump. The figure will shock you. That's "PROFIT TIME" lost, never to be regained.

The Vascoloy-Ramet Corp., of Waukegan, Ill., a leading manufacturer of cemented carbides and Tantung cutting tools, have solved their sump cleaning problem with a Tornado JUMBO VACUUM Cleaner.

Previously, this messy job required 4 hours per machine. Now it takes only 1½ hours—a saving of 2½ hours of "PROFIT TIME" per machine. (Cleaning time varies with other types

of Production machines, but time saved remains proportionately the same.)

The Tornado JUMBO can increase your "PROFIT TIME" too!

Oil, water, chips and sludge are easy prey for the powerful suction of the Tornado JUMBO (325 m.p.h. suction speeds) which rapidly deposits these materials in any standard 55 gallon drum. When one drum is filled the Tornado JUMBO conversion can be moved quickly from drum to drum increasing again the "PROFIT TIME" you save with a Tornado JUMBO.

Tornado JUMBO conversion units fit all standard 55 gallon drums and cost no more than regular size industrial cleaners. Start increasing your "PROFIT TIME" Today!

Tornado manufactures a complete line of industrial cleaning equipment that can save you production time and maintenance cost.

Write for Catalog 694 and an "in plant" demonstration now!

BREUER ELECTRIC MFG. CO.

5106 North Ravenswood Avenue

Chicago 40, Illinois



TAKES THE IN DUST OUT OF INDUSTRY

ative resources of the individual and the ease with which a group adapts to change, when goals are set by the group.

However, anyone who has foundered in the frustration of contentious committees will think twice before espousing this view. So will those who are aware of the importance of individual responsibility and accountability for particular decisions. Nevertheless, the book is worth the attention of the busy executive, particularly the section devoted to an actual experiment in group-centered leadership in an industrial plant.

While You Were Gone

MIRACLE OF WORLD WAR II by Francis Walton, The Macmillan Company, 60 Fifth Avenue, New York 11, N.Y., 375 pages, \$7.50.

In the heady days of World War II, which now seem long ago, Stalin offered the toast "To American production, without which this war would have been lost." This new book puts into print for all those who may have forgotten it, the immense, staggering achievement of American industry during the war years.

It chronicles the frustrating fiascos and fantastic successes that marked industry and the day-by-day progress that converted a limping economy into the arsenal of democracy.

How precious secrets were kept and sometimes lost, how new methods were hurriedly devised, and how unorthodox personnel practices actually worked are among the many strands of this absorbing story.

Meaning of Marketing

TWO KEYS TO MODERN MARKETING by Charles G. Mortimer, The Updegraff Press, Harwood Building, Scarsdale, N. Y., 66 pages, \$1.

This is the latest in a series of executive development booklets which are now being used in scores of top corporations. In this stimulating booklet, the President of General Foods presents two concepts—motion and convenience—which are at the core of modern marketing. By dozens of questions and examples of applications, the reader is provided with fresh insight into the meaning of marketing.

Key to Office Research

THE NOMA BIBLIOGRAPHY FOR OFFICE MANAGEMENT, National Office Management Association, 132 West Cheltenham Avenue, Philadelphia 44, Pa., 48 pages, \$5.

Here are annotated listings of hundreds of books, articles, booklets, and other material which appeared in print on office management during the past five years. All aspects of office management from absenteeism to work simplification are included.



WIDE WORLD PHOTOGRAPH

Lewis D. Gilbert tells of his twenty-year struggle against top management in his new book *Dividends and Democracy* (American Research Council, 11 East 44 Street, New York 17, N.Y., 242 pages, \$3.95). As a leader of dissident stockholders—Mr. Gilbert has

holdings in 600 corporations—he has irked many top brass who used to ask him out into the alley but now ask him to lunch. He discusses the stockholder relations of many companies and praises those executives who measure up to his standards for corporate behavior.



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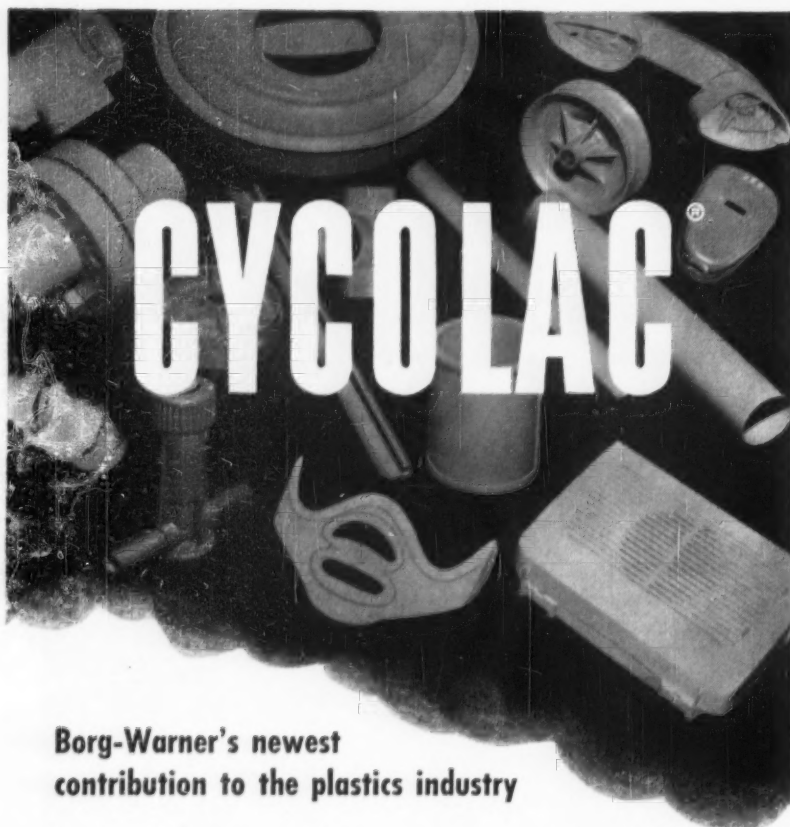
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Recordak Microfilming.



EDUCATION: BUSINESS MEN'S BUSINESS

Continued from page 47



Borg-Warner's newest contribution to the plastics industry

Cyclac is a high-impact thermoplastic resin with literally hundreds of exciting uses. It has the toughness of rubber, yet approaches the surface hardness of most non-ferrous metals. It resists corrosion and acids which affect steel and iron pipes; is heat-resistant (holds boiling water); shatterproof; soluble; and so flexible it may be sprayed on elastic surfaces.

Cyclac was developed and is being produced by the Marbon Chemical Division of Borg-Warner. It is not just another plastic. Because of its unique "plus" factors, it suggests many new applications not heretofore considered for plastics.

Current production is being increased constantly to supply the rapidly expanding market. A new \$10,000,000 Marbon plant is being constructed at Washington, W. Va., which will be in addition to the present two plants at Gary, Ind.

Development of Cyclac is another illustration of the practical way in which "design it better—make it better" at Borg-Warner means growth to industry and an enriched pattern of living to the public.



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about the results of the White House Conference. Any procedure designed to permit 2,000 persons to exchange views and reach agreements on a set of complicated questions is bound to fall short of complete satisfaction. But when the Conference was over, hundreds of people—including many who originally doubted that a conference of 2,000 people could be organized into small discussion groups successfully—were inspired to attack their local school problems with renewed vigor.

The White House Conference was a springboard—but many thousands more citizens must take the leap into school affairs before it can really pay off. School issues aren't solved at the national level.

This is the job that remains: to stimulate citizens in every community to come together, talk over their schools' problems, and agree on workable solutions.

Executives of business and industry have a double responsibility to promote the welfare of the schools. Like other citizens they should support public education as individuals. As caretakers of American enterprise both enlightened self-interest and a sense of civic responsibility should lead management into school affairs. Either as individuals or as business executives there are few opportunities for the investment of time or money that will pay such big dividends in public welfare and private satisfaction.

But the phrase "support your schools" is often misunderstood. It does not necessarily mean the contribution of funds—although it may—nor does it mean uncritical acceptance of the schools as they are. It does mean a constructive attitude toward public education which finds expression in positive action.

As individuals, you can contribute nothing more valuable than your time, intelligence, and experience. Get acquainted with your local school district and find out what problems your school board is wrestling with. If your community has a citizens' committee, find out what it's doing and what you can do to help. Become familiar with the program of your State citizens' committee and see where your talents and experience can

help out. The hardest thing to give is yourself. But it is also the most valuable—and it offers the biggest potential returns.

As for a critical attitude toward the schools, all democratic institutions need constant re-evaluation to keep them dynamic, flexible, and healthy. The schools are no exception. In fact, because of the special positions they occupy in our society it is possible that they need more criticism than most. But it must be informed and constructive. The taxpayer who opposes every attempt to improve his local schools, and then complains bitterly because they are not more effective, does not contribute to good education.

As representatives of business and industry you can find other effective means for working toward the same end. The National Planning Association has published a guide called *The Manual of Corporate Giving* which includes a chapter on the public schools. Here you will find suggestions ranging from co-operation with the U.S. Chamber of Commerce's Business-Industry-Education days to financing the most esoteric educational research. But much of the most effective co-operation you can offer is simpler and begins closer to home.

The important thing is the determination of business management to do something. An outstanding example in this direction was set by Standard Oil of New Jersey when its Board of Directors in 1954 adopted a resolution clearly giving encouragement to its employees to participate in school activities. The resolution started with the statement, "The importance of our public school system to the growth, prosperity, peace, and security of our country can scarcely be over-estimated at any time. . . . American business enterprise is aware of its own great debt to the public school system of this country, because it is essential to its own survival and growth." The resolution then went on as follows:

"The right and duty of the individual to support our public school system is clear. One such duty is, of course, that of paying taxes. But it seems to us clear that the obligation of each of us as an individual runs beyond mere payment of taxes.

"Over the years many Jersey Standard employees have participated actively in their local school programs. The company would like to see more of its people take an active interest in the problems and opportunities facing the public schools in their own communities. Obviously, the conditions affecting the individual's ability to participate in school activities will vary, but our company encourages its employees as good American citizens to undertake this important work."

General Electric also has for a number of years encouraged its employees to participate in local school affairs. As a result the company lists on its rolls many school-board members, PTA members, and active workers in local and State citizens' committees.

As a minor example of how a company can help, several years ago the Citizens' School Committee in Cincinnati held a workshop to mobilize citizen interest in the area. A Cincinnati company supplied needed secretarial help during the course of the meeting after it learned that even so small a contribution to school affairs would be welcome.

Some executives may hesitate to make certain types of corporate contributions toward better schools. However, there is one area of financial support (aside from those listed in *The Manual of Corporate Giving*, mentioned above) about which there can be no question—the support of citizen organizations working for the improvement of the schools. I mentioned above the need for a follow-up on the White House Conference in order to realize the full benefits it could offer. Many local and State citizens' committees are planning just such follow-up conferences during the next year. Virtually all of these committees

are hampered by lack of funds. They offer an opportunity to make a small investment pay large dividends in public welfare and private good will. Some of these committees are temporary—set up to plan and hold one or more conferences. Others are permanent committees carrying on broad programs for school betterment over a period of years and they merit your continuing support.

The New York State Citizens' Committee for the Public Schools is an example of such an organization. It is more fortunate than most because it has secured a fund-raising committee of leaders in business and industry from all over the State. Unfortunately, the New York Committee is almost unique in this respect, but its experience suggests that management can help greatly by contributing both funds and the technical know-how on fund raising.

Some of the committees planning conferences in the next few months—and years—will doubtless receive some financial aid from State or local governments. Most of them probably will not. Virtually all will need some help.

If business and industry get behind this program of citizen conferences and the subsequent plans for local and State school improvement there is no doubt that America's educational crisis will be met. In the process, President Eisenhower's hope for the White House Conference will be fully justified. But most important, the nation's schools will be better able to cope with the tremendous responsibilities our society places on them. And, incidentally, business and industry will receive dividends in terms of better employees and a population with a steadily increasing capacity to consume the output of American productivity.



The AUTHOR

NEIL McElroy, president of Procter & Gamble, was graduated from Harvard in 1925. He began in the P&G advertising department, and moved up through advertising and sales promotion, two key functions within the company. He became president in 1948, at the age of 44.

Despite his many duties as head of the Company, Mr. McElroy manages to find time for numerous civic activities. Besides serving as Chairman of the White House Conference on Education, he is a past president of the Association of Soap and Glycerine Producers, and is presently vice-chairman of the National Industrial Conference Board, vice-chairman of the United Community Campaigns of America, and a member of the executive committee of the Citizens Development Committee in Cincinnati, to list just a few of his many activities.

Work savings alone pay ROL-DEX cost in less than one year for airline



by
Watson



The illustration shows an agent in the reservations section of a large national airline, checking reservations at a Rol-Dex unit. The flexibility of the unit permits from one to twelve agents to work the unit at one time, according to the work load.

When standard equipment could no longer meet the needs of this airline, ROL-DEX designed a special unit to do the job, which:

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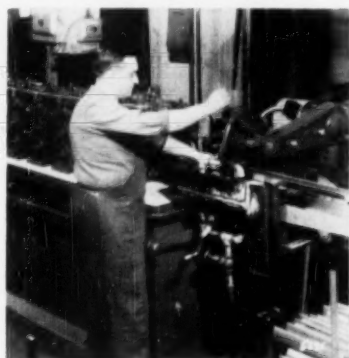
*May 1956 marks the fifteenth anniversary
of the Savings Bond Program.*



Here and There IN BUSINESS

WHAT'S NEW AS OBSERVED BY THE EDITORS

Packaged cut-off—a work head and belt guard assembly like those incorporated in standard Delta cut-off machines—is offered by Rock-



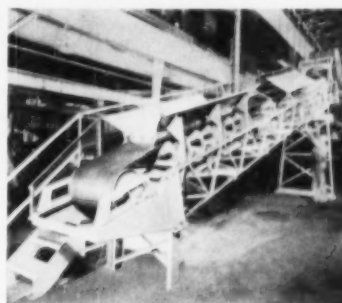
well Manufacturing Company, Delta Power Tool Division, 449 North Lexington Ave., Pittsburgh 8, Pa., for those who want to build their own special-purpose machines. In the unit pictured, for example, the cut-off is attached to a machine

used to form moldings. The complete "package" includes a ball bearing assembly, three-belt arbor pulley, wheel flanges, feed handle, motor mounting plate, pivot shaft, and adjustable torsion spring.

Vibrator, for installation on bins, hoppers, and chutes handling dry materials, is the first of a new line of vibratory equipment announced by Eriez Manufacturing Company, Erie, Pa. Combining an electromagnet and a permanent magnet, the *Hi-Vi* unit vibrator is said to produce a kneading as well as a pulsating action that prevents sticking, arching, or bridging of the material. According to Eriez, the vibrator needs no rectifier, can be connected directly to the available current (115 or 230 volts).

Sectional belt conveyors, pre-assembled with idlers, truss frames, and supporting bents, can now be

obtained from nine Link-Belt Company plants across the country. Belt widths range from 18 to 36 inches. Trusses are 24 and 42 inches deep. Link-Belt notes that the conveyors can be mounted on almost any type of support (steel, concrete, wood cribbing, or ties), and will operate over either horizontal or inclined



paths. Suggested applications include power plants, pulp paper mills, food and chemical processing. Link-Belt plants equipped to

For Rail or Road

Switching engine, king-size rides on the rails or over the road, can handle as many as nine freight cars, has a 30,000 foot-pound drawbar pull, meets ICC safety specifications. Here shown at work in Pennsylvania Railroad freight yard, it is suggested for use in many industrial plants as well. It is 10 feet 3 inches wide, and less than 24 feet

long. It will move in either direction (the control arm swings around a central pedestal, and there is a driver's seat on each side). It is Diesel-powered; uses compressed air for steering and braking. Height is 10 feet 13 inches; weight, 36,000 pounds. Called the *SwitchMobile*, it is made by LeTourneau-Westinghouse Company, Peoria, Ill.



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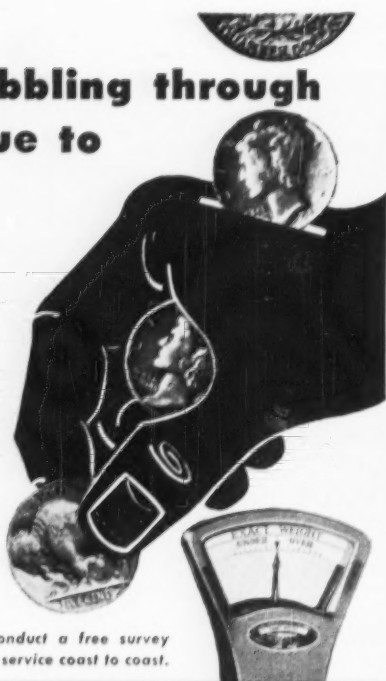
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Electro-Silv-A-King Corporation
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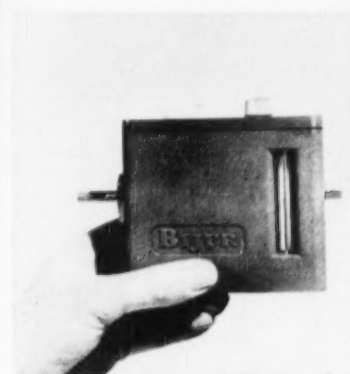
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assemble the conveyors are located in Seattle, San Francisco, Los Angeles, Houston, Minneapolis, Chicago, Colmar (Pa.), and Toronto (Ontario).

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tools, testing instruments, and similar equipment, is made by Bijur Lubricating Corporation, Rochelle Park, N. J. The lubricator employs a constant-pressure pump, has a built-in oil level gage (right).

Two-way radiophone takes advantage of recent advances in transistors, plated circuits, and new, lightweight power packs to achieve a big increase in output and a decrease in weight. Made by Motorola's Communications and Electronics Division, 4545 West Au-



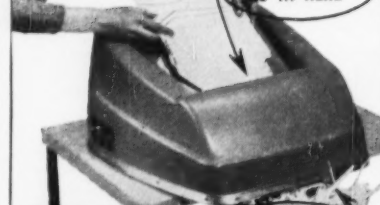
gusta Blvd., Chicago 51, Ill., the new "Handie-Talkie" is offered in several models, can be used for inventory control, as shown, or for plant protection, control of maintenance and repair operations, or on the production line.

Duplicating machine, featuring an automatic blanket cleaner, is announced by Addressograph-Multigraph Corp., Cleveland, Ohio.



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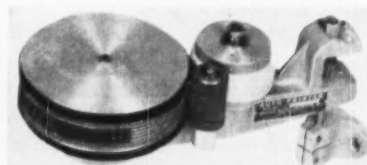
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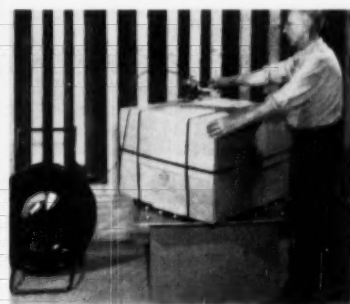
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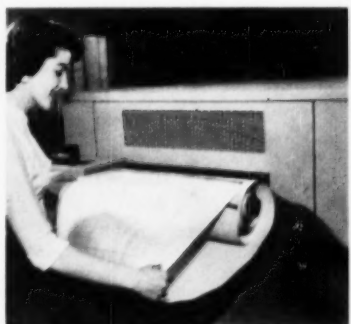
An addition to the Multilith Process Duplicator line, the unit also has controlled automatic moistening and an automatic master clamp cylinder. Addressograph - Multigraph says it can produce 800 to 900 masters a day.

Table top for package-strapping has built-in casters to make it easy to slide heavy containers around to



the desired position. It is 36 inches square, weighs 37 pounds, can be mounted on a permanent or portable base. Signode Steel Strapping Company, 2600 North Western Ave., Chicago 47, Ill., sells it.

Dry-photographic enlarger, for reproducing engineering drawings and similar work from microfilm originals, is offered by Radio Corporation of America. Using the Electrofax process, the enlarger-printer can turn out 17 by 22-inch reproductions at a reported speed of one every four seconds. Microfilm rolls (35mm) or Dexter Folding Company Filmsort cards are



fed into lens system, images are transferred to electrosensitive-coated paper which comes in rolls 22 inches wide, 15 inches in diameter, and 3,500 feet long. Reproductions are cut from rolls as needed.

Magnetic counter, with tumbler lock to prevent tampering, is offered by Veeder-Root, Inc., Hartford 2, Conn. Key is used to reset

Beneficial Reports for 1955

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HIGHLIGHTS

	1955	1954
Net Income	\$ 16,807,373	\$ 15,197,593
Net Income per Common Share	\$1.71	\$1.55*
Cash Dividends paid per Common Share	\$1.00	\$0.96*
Amount of Loans Made	\$632,491,082	\$560,524,214
Number of Loans Made	1,783,979	1,729,161
Instalment Notes Receivable	\$395,072,833	\$345,331,314
Number of Offices	978	863

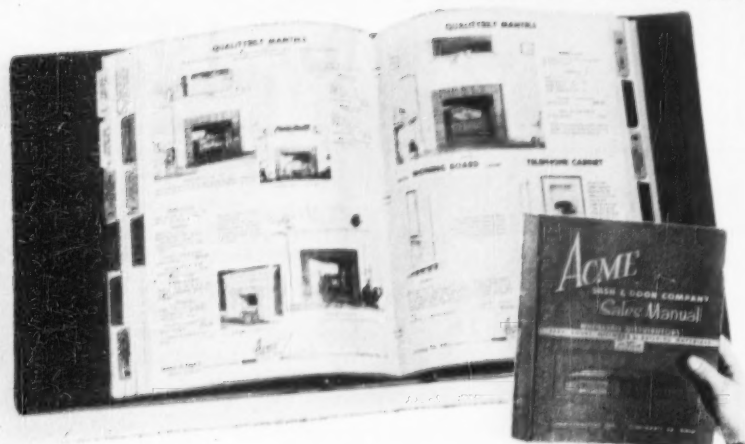
* Adjusted for 2 1/2 for 1 stock split.

The information contained herein should be read in conjunction with the financial statements and notes appearing in the 1955 Annual Report to Stockholders. A COPY OF THE REPORT WILL BE FURNISHED UPON REQUEST.

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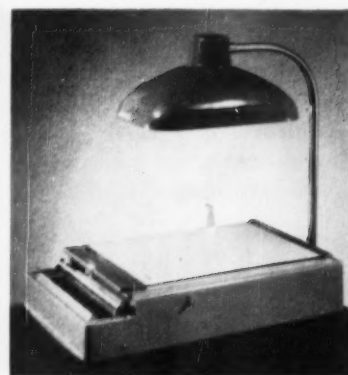
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figures to zero. Available in 110 and 220 volt AC and DC units, it has a capacity of 1,000 counts per minute.



Photocopy machine, which can produce up to five copies from one master, is an addition to the Verifax line of Eastman Kodak Company. Called the *Signet*, the unit will take documents up to legal size, comes complete with timer and attached photoflood lamp.

Integrated data processing has another entry in the field, this one offered by Datamatic Corporation, Newton Highlands, Mass. The system, consisting of input converter

(punched card-to-tape), magnetic files, central processor, and output converter, uses 31-channel magnetic tape (three inches wide).

Car unloader, which applies a gentle rocking motion to speed bulk materials on their way, is made by Link-Belt Company, Prudential Plaza, Chicago 1, Ill. Designed for use with the free-flowing bulk materials like grain, the new *Kar-Flo* tilts the car only about eight degrees to each side, instead of tipping it endwise as well as sidewise, as does the company's heavier-duty grain car unloader. The *Kar-Flo* unit is designed for operation by one man, and requires only a 25-horsepower motor. It can, says L-B, handle four carloads an hour.



DUN'S REVIEW and Modern Industry

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QUIZ ANSWERS

Quiz starts on page 137

1. Many people use the two terms "trademark" and "trade name" interchangeably. The Federal Trade-mark Law clearly differentiates between the two and does not provide for the registration of a trade name. As defined by an act of Congress, a trademark is "any word, name, symbol, or device or combination thereof, adopted and used by a manufacturer or merchant to identify his goods and distinguish them from those manufactured or sold by others." In essence, a trademark applies to a commodity and is synonymous with a brand name. A trade name applies not to the goods but to the company and is the company name.

2. Vaseline is the trademark of the Chesebrough Manufacturing Co. and is used on petroleum jelly and hair tonic. The term "Technicolor" can be used only by the Technicolor Motion Picture Corporation. Teletype printers are produced only by Western Union. Escalator, cellophane, deep freeze, zipper, ping-pong, and corn flakes were once trademarks but were abandoned or lost. Farina is merely a general name for cereal."

3. Trademarks have been found in Egyptian pottery dating as far back as 6000 B.C. Producers of brick in ancient Egypt were legally bound to place their names and the names of individual workmen on each brick.

4. The U.S. Patent Office.

5. The Dictaphone dictating machine is produced by Dictaphone Corporation, of course. Band-Aid adhesive bandages are the product of Johnson and Johnson. Duplicating machines with the trademark Mimeograph are produced by the A. B. Dick Company. Linoleum, milk of magnesia, shredded wheat, and nylon once were trademarks but are no longer. Argyrol, borax, and kinescope never were.

6. Yes, if the two products are not competitive and if the other product is not likely to be thought of as originating in your company. Courts have generally allowed the use of trademarks which are simi-

lar in wording but not in design.

7. The very valuable trademark for men's underwear was taken from the company name Bradley, Voorhis and Day. The Reo automobile was named for Ransom Eli Olds, who also gave his name to another car indicating that his name was quite mobile.

8. False, registration does not create property rights in a trademark nor does it create a monopoly. However, registration does—since the Lanham Act of 1947—confer the incontestable right to the trademark as long as it is properly used. You may lose your trademark if it becomes, with your encouragement or without your protests, the generic or everyday word for similar products of its kind. You may also lose it by the intentional disuse of it for two consecutive years.

9. Portland cement was named for the Isle of Portland in the English Channel, noted for its quarries of limestone.

10. True, but the Patent Office won't register terms which other manufacturers also have a right to use on similar products, such as descriptive words, or class word names, words that indicate only quality, ingredients, or the geographical origin.

If you choose a trademark which becomes a generically descriptive term for the kind of product, e.g., aspirin, escalator, cellophane, this may be an aid to your sales, but only temporarily. For when the trademark passes into the language through repeated use by newspapers, magazines, and the general public, it becomes fair game for other companies to attempt to adopt.

However, since the enactment of the Lanham Act in 1947, owners of trademarks have apparently been provided with additional protection. Even if your trademark becomes widely used as a generic term for all the goods of its kind, you may not lose it if you have made a diligent effort to police your trademark and have not encouraged the generic use of it. However, a clear-cut court ruling is still lacking.

Editors of newspapers and magazines often receive letters from trademark owners in protest against the spelling of a trademark without a capital letter. Courts have held that lower-case spelling carries the implication that the word is generic. Dictionary compilers rely considerably on magazines and newspapers in determining when new words, sometimes originally trademarks, have entered the language. Alert manufacturers also watch tariff schedules, government statistical releases, and advertisements by retailers to make sure their trademarks are not used descriptively.

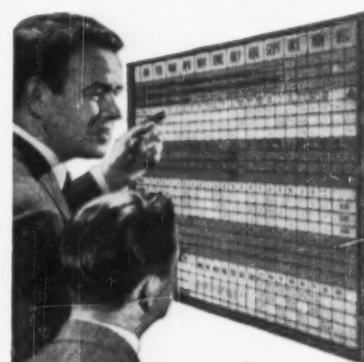
11. There are quite a number, including Seven-Up, V-8 Vegetable Juice, 2-in-1 Shoe Polish, Three-in-One Oil, Heinz' 57 Varieties, and, of course, Three Feathers and Four Roses whiskey.

12. You're not allowed to register a trademark which consists of the name, portrait, or signature of a particular individual without his specific consent. As long as the widow of a past President of the U.S. lives, you can't use his name without her consent.

13. You certainly have, if you make clear that your product is not that of the R. J. Reynolds Tobacco Co.

14. Bakelite is the trademark for vinyl resins produced by the Bakelite Company, a division of Union Carbide and Carbon Corporation. Victrola can be applied only to phonographs produced by RCA. Benzdrine is the trademark of Smith, Kline & French for the drug amphetamine sulphate. The trademark Mercurochrome belongs to Hynson, Westcott and Dunning, Inc., and applies to the sodium dibromoxymethylfluorescein produced by that company. Only the Formica Insulation Co. has the right to use the trademark Formica for laminated phenolic and urea resins in a fibrous base. No office machines but those produced by Felt & Tarrant Manufacturing Company can be called Comptometer. Mineral oil and aspirin, both former trademarks, were lost through improper use. Neither aerosol nor leatherette has ever been a trademark.

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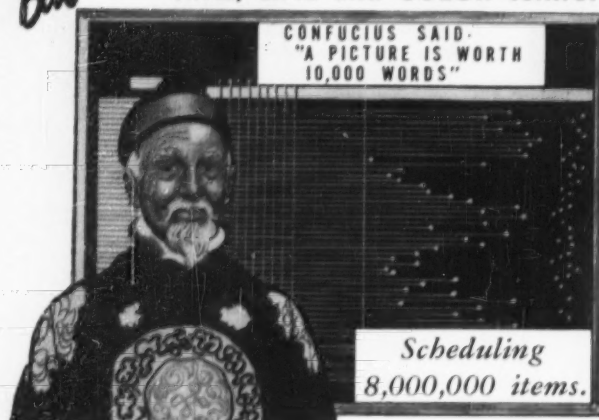
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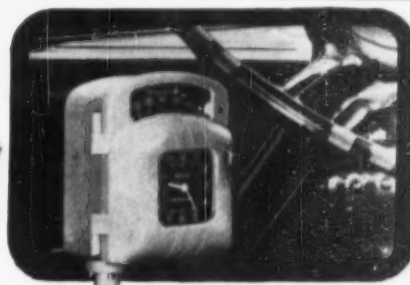
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OPERATES
ITS OWN
TRUCKS



Tachographs can lower repair

costs, increase operation efficiency,
and improve your safety record

Regardless of the type of vehicle you operate, a Tachograph will economically measure the complete performance of both trucks and drivers.

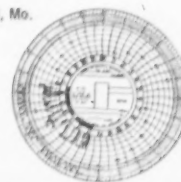
The Tachograph is an accurate recording speedometer that mounts easily on the dashboard. From the wax-coated chart that is inserted *inside* the tamper-proof aluminum case, you get a complete and permanent record of the entire trip: When truck started—Stopped—Idling time—Distance between stops. Easy-to-

read illuminated dials also show time of day, m.p.h. and total mileage. Tachograph models which indicate and record engine r.p.m. are also available. There's the added safety advantage of the red warning light that signals the driver whenever your company's predetermined speed limit is exceeded.

Learn the full facts about Tachographs. The coupon below brings a copy of Bulletin SU-3—it tells the whole Tachograph story.

Wagner Electric Corporation 6439 Plymouth Ave., St. Louis 14, Mo.
Please send a copy of Bulletin SU-3.

Name and Position.....
Company.....
Address.....
City..... State.....
We operate..... Vehicles..... 856-S





***How the telephone helps
six "Square D" salesmen cover 800,000 square miles***

**Systematic use of the telephone
saves time, steps up sales,
speeds service to customers**

In the regional office of the Square D Company in Seattle, Washington, the telephone helps six salesmen serve customers better in five northwestern states and the Territory of Alaska.

Before going on trips, the salesmen line up out-of-town appointments in advance by telephone. That way they save long waits in reception

rooms and avoid intruding on customers at inconvenient times.

Incoming orders are followed up by telephone, too. That way customers know about related items available, shipping arrangements and freight minimums they can take advantage of, at a saving.

Your company, like "Square D" and its customers, can profit from the planned use of the telephone. We'd like to tell you more about it. Just call your Bell Telephone Business Office.

LONG DISTANCE RATES ARE LOW

Here are some examples:

New York to Philadelphia	50¢
Cleveland to Indianapolis	90¢
Minneapolis to Detroit . .	\$1.30
St. Louis to Boston	\$1.70
Seattle to Chicago	\$2.20

These are the daytime Station-to-Station rates for the first three minutes. They do not include the 10% federal excise tax.

CALL BY NUMBER. IT'S TWICE AS FAST.

BELL TELEPHONE SYSTEM





Q. How can Goldenberg afford to lease trucks?

A. Elementary! He can't afford to miss delivery dates!

Q. Cost prohibitive?

A. No, attractive! Hertz leasing always compares favorably with truck ownership.

Your deliveries go like clock-work. Hertz always keeps your leased trucks in perfect running condition. Yet should a breakdown occur, a quick call to Hertz will produce your replacement truck in just a few minutes.

Your trucking headaches go like magic. You provide the driver, Hertz does the rest — washes, services, repairs, insures, fuels — paints your trucks to look like your own. They'll be good advertising the year 'round. And Hertz even ends the need for truck cost accounting — Hertz' weekly bills provide a complete cost record.

You're never saddled with idle trucks. You lease only the number of trucks you need for routine business. You only pay for extra trucks when peak loads or emergencies require them. Hertz gets idle trucks out of your costs.

Your overhead goes down. Hertz takes you out of the truck maintenance business. You no longer have to pay for truck accounting, repairs, servicing, special equipment or big truck maintenance payrolls. And you gain new tax advantages. Get your capital out of trucks. In fact, Hertz will pay full cash value for your trucks and replace them with new Fords or other sturdy makes, if necessary. Chances are, leasing from Hertz will cost you no more . . . sometimes less . . . than you now pay for inferior truck service.

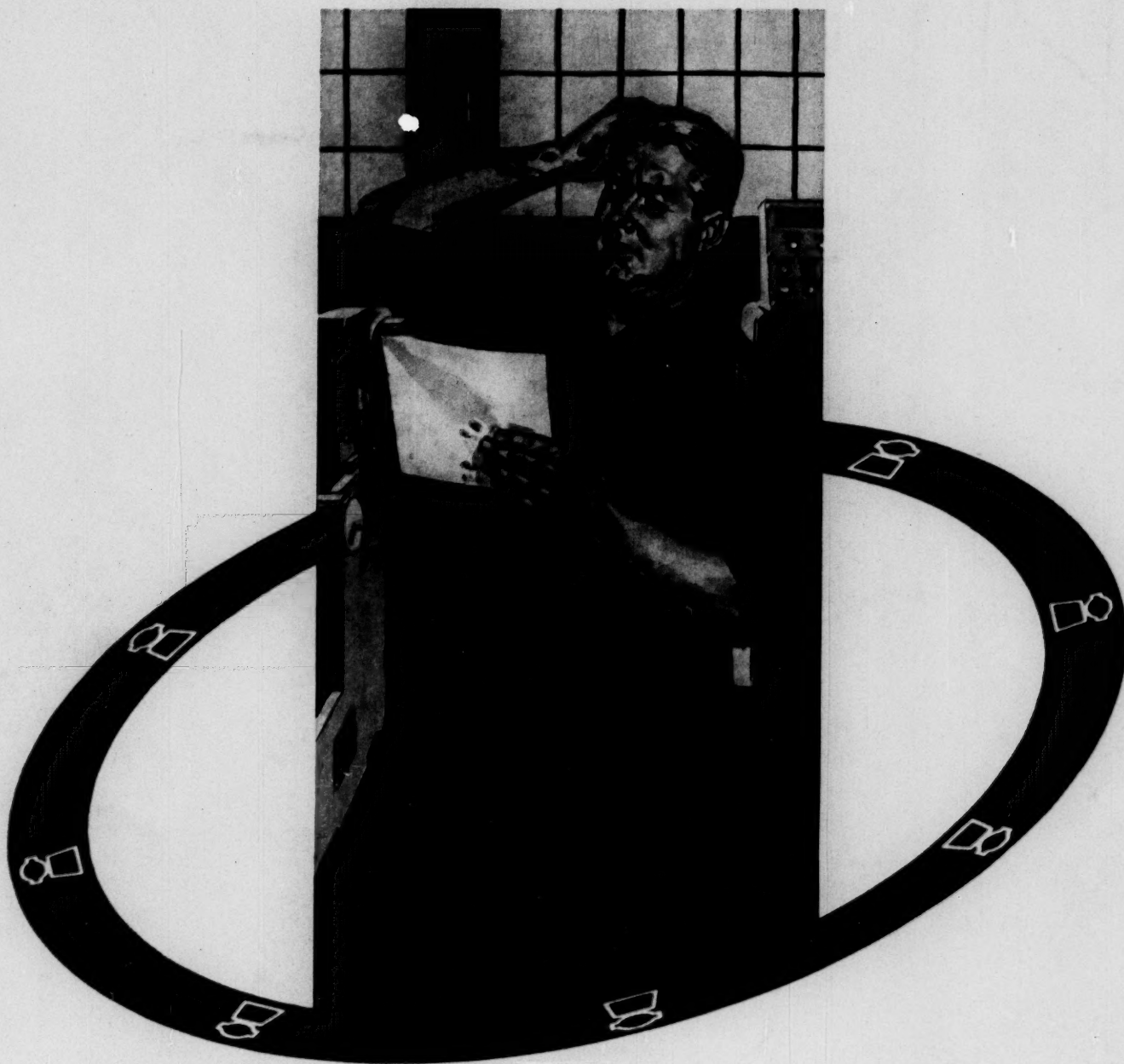
Your trucks are properly engineered and insured. Your Hertz trucks will be *designed* for your special hauling jobs. Hertz Truck Engineers are experienced and familiar with the latest equipment improvements. And every truck is insured the way you want it, through your own agent, if desired.

FREE TRUCKING ANALYSIS

Like Goldenberg's, you'll find it pays to have Hertz study your trucking situation. There's no obligation, and every reason to expect some helpful answers to your trucking problems. Look up your local Hertz Truck Rental office under "H" in the phone book, or call or write Hertz Truck Rental System, Dept. H46, 218 South Wabash Avenue, Chicago 4, Illinois. Phone: WEBster 9-5165.

Most experienced...by far

HERTZ
Truck rental



Process Sheet or Puzzle?

Important facts and figures can fade—get smudged or even get rubbed out when process sheets, work orders and parts lists are subjected to oil and grease plus many handlings.

Then the guessing starts and wrong guesses cause costly rejects.

MODERN duplicating ends that problem—gives you copies that stay clear and easy to read even when put in with oil-soaked parts.

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